

PRELIMINARY
**CREEKSIDE RESTORATION
MONITORING AND
MAINTENANCE PLAN**

**State and Hitchcock Center
Redevelopment Project**
3751-3771 State Street
Santa Barbara, California
March 18, 2006

Prepared for:

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CREEKSIDE RESTORATION MONITORING AND MAINTENANCE PLAN

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1.0 INTRODUCTION

1.1 Project Description

The *State and Hitchcock Center Redevelopment Project* is situated on 3.54 acres, bound by State Street on the north, San Roque Creek on the south, Hitchcock Way on the east, and Arroyo Burro Creek on the west. The proposed development would involve construction of 4 (four) new, one- to three-story buildings on the project site. The largest of the new buildings would include a relocated Circuit City and a Whole Foods Market. The Circuit City and Whole Foods structure also includes a subterranean parking garage and a truck receiving area. In addition, a new structure would be constructed at the corner of State Street and Hitchcock Way, and a new structure would be constructed along the westernmost property boundary, both of which would be occupied by various commercial and retail tenants. A new building would also be constructed in a location on the western portion of the site fronting State Street and would be occupied by the relocated Citibank.

The proposed project would add residential units to the City's housing stock, some of which are proposed as middle-income affordable units. A number of the market rate, three-story townhouse style condominium units are proposed along the San Roque and Arroyo Burro Creek corridors generally behind Whole Foods. The current Site Plan is shown in Figure 1.

1.2 Overview of Project Modifications Affecting the Creeks

The rigorous planning and development review for the *State and Hitchcock Center Redevelopment Project* has brought about important design changes that affect the creek environment:

First Submittal (May, 2005)

A Introduction of several independent methods of stormwater treatment to decrease source of automotive-generated pollutants. Truck delivery route long rear of building remains but is now of permeable material.

B Restoration Plan includes removal of non-native understory and introduction of native plants along creek slopes. Removal of exotic trees and alterations to the bed or bank grade were not part of the scope of the Plan at this time.

Second Submittal (October, 2005)

A Truck delivery route eliminated alongside San Roque Creek (placed underground using an innovative "turn-in-place" floor mechanism)

B Restoration Plan expanded to include removal of eucalyptus (slowly over time). Project redesign includes nine condominiums along San Roque Creek, providing more opportunity for habitat enhancing vegetation. Outer buffers include grassy condominium yards.

This **third submittal** eliminates the condominium yards alongside San Roque Creek to allow the introduction of woody native (and higher wildlife value) plantings in the outer riparian buffer zones. The Restoration Plan is also augmented with a detailed exotic plant eradication plan, which includes the initial removal of all eucalyptus trees at start of restoration program, rather than phasing the removal.

1.3 Results of the Creek Stability Analysis (Questa Engineering)

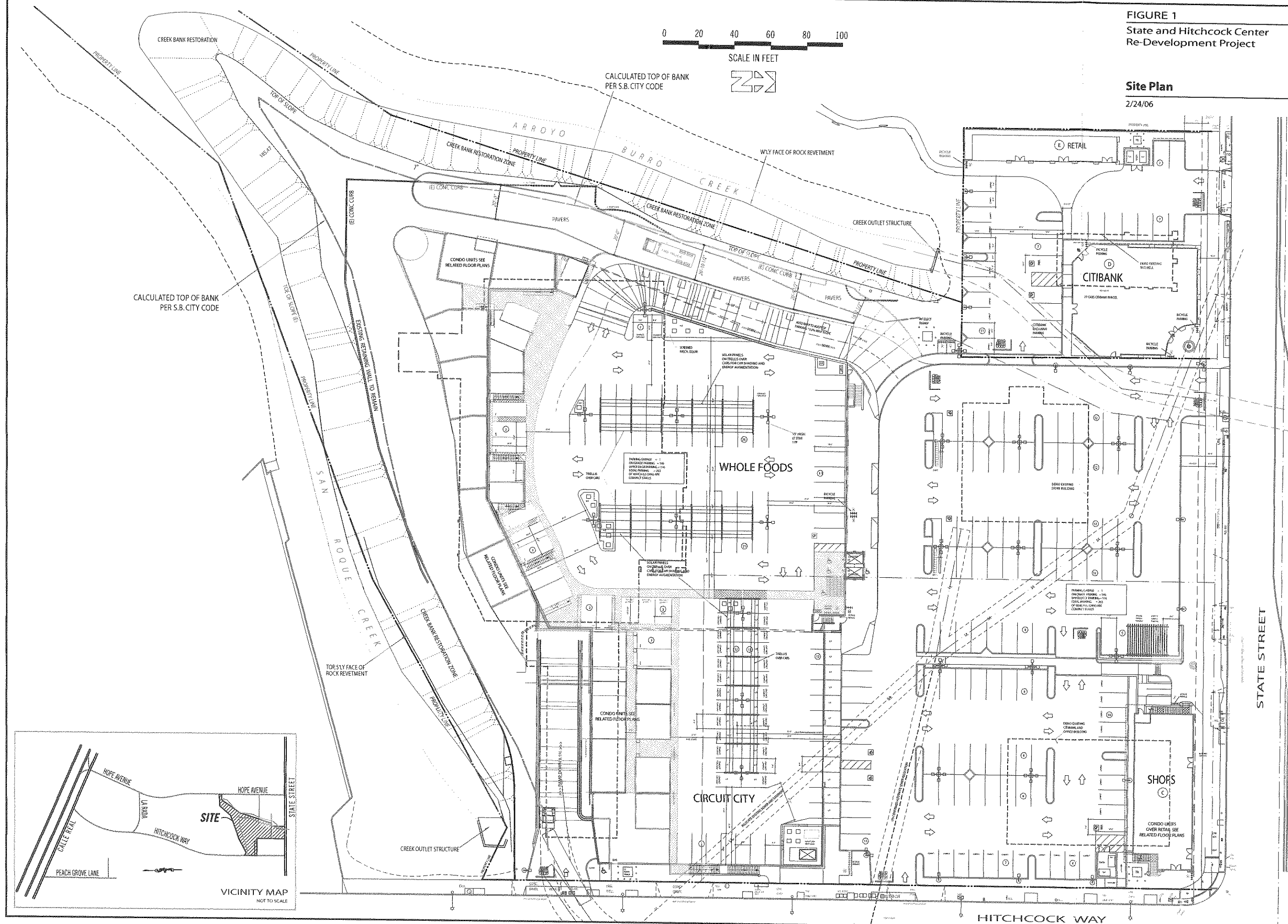
A major modification in this submittal is the introduction of a Creek Stability Analysis, submitted by Questa Engineering (2006) (Appendix 1). The study determined that San Roque Creek was stable. However, Questa has developed a Rehabilitation Concept Plan for a long-term solution to the slowly progressing bank degradation noted on Arroyo Burro Creek. The Study estimates that, based on the size of the bed material (sand) along the 500-foot project reach, and the current slope between the Hope Street culvert and State Street, the channel will continue to degrade between 6 inches to 3.5 feet over the long term if the bed load composition remains the same sandy material. The largest amount of degradation is likely to be seen immediately below the State Street culvert outlet.

The Rehabilitation Concept Plan developed by Questa, entails placing fill into the existing channel and recreating a more stable, steeper, 2 percent gradient for approximately 450 feet, starting from the State Street outlet culvert. A series of 8, 1-foot high boulder grade controls would be placed about 50 feet apart in this stretch. A total of 800 to 900 cubic yards of material and 800 tons of rock (1 and 2 ton with other sizes ranging from ¾ to 16 inches) would be placed in the creek bed.

FIGURE 1
State and Hitchcock Center
Re-Development Project

Site Plan

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This plan, though it involves major channel construction, has numerous benefits. Placing fill in the channel will increase channel width, reducing flow depth and reducing channel scour forces. Wider channel width would also accommodate bank toe planting and biotechnical stabilization techniques. Reestablishing a higher gradient creek would reduce its tendency to move laterally, ensuring greater bank toe stability.

Penfield and Smith conducted a preliminary hydraulic analysis to determine if raising the bed in this section of the creek would cause any new overbank flooding. They found that no increase in the 100-year flood elevation upstream of the project would result, and that although the 100-year water surface would increase downstream, at least 2 feet of freeboard would remain.

Preliminary, onsite discussions with representatives from the California Department of Fish and Game (CDFG), the National Marine Fisheries Service (NMFS), and the Army Corps of Engineers (ACOE) regarding this Plan have been initiated. Permitting issues are discussed in Section 1.5.

1.4 Adequacy of Creek Setbacks and Buffers

Figure 1 identifies the “**top of slope**” correlating to the sharp change in slope angle at the asphalted parking lot; the “**calculated top of bank**”,¹ as described in the Santa Barbara Municipal Code 28.87.250 (Flood Control Ordinance for Mission Creek); and a line signifying a **25 foot setback from the “calculated top of bank.”** In this report, “**Development Setback**” refers to distance between the “calculated top of bank” and the first building. The term “**Buffer**” or “**Functional Buffer**” is defined in this report to include the area extending from the active stream channel to the first building.

The “**100 year flood line**” is also identified. The Project team maintains that the apparent “top of slope,” a sharp hinged point at the asphalt edge associated with the shopping center construction, does not represent the “top of bank,” nor is it related to the current creek environment. Due to long-term alteration to the creek banks, the natural shape of this slope has been altered and the topography of the banks has been obscured.

Putting aside the almost “philosophical” nature of the *location* of the “top of bank,” Figure 2 simply illustrates the progression, or evolution, of the makeup

¹ The “calculated top of bank”, per Santa Barbara Municipal Code 28.87.250 Ordinance applying to Mission Creek, refers to the theoretical intersection of a 1 1/2 :1 sloped line drawn from the toe of the bank to the horizontal plane lying above, and often further away from, the top of the bank.

of creek buffer, starting from the existing situation through the three project submittals. Each of the project designs improves upon the last. In a purely CEQA-driven review, based on the resources affected by the project, the first submittal resulted in insignificant or fully mitigated impacts. (Potential impacts expected from this project focus on erosion and pollution control, not reduced wildlife habitat value, as this small and isolated inner City habitat.) The modification made in this third submittal (namely the removal of the 12 foot wide condominium yards) allows for more control over the restoration plantings right up the buildings, thus improving habitat for wildlife. This is an added bonus for the project.

Adequacy of the buffer was addressed in the previous submittals and is summarized here again. The current Plan has the following distance between development (the first building) and these benchmarks:

	San Roque Creek	Arroyo Burro Creek
• "Calculated Top of Bank" to Development	25 to 40 feet	≈30 feet
• Top of Slope to Development	25 to 45 feet	40 - 50 feet
• 100yr Flood Line to Development	50 feet	50 feet
• Active Stream Channel to Development	55 to 70 feet	55 to 70 feet

Publications I have found compiled by the National Resources Conservation Service and others suggest that a **minimum buffer of 35 feet, measured from the water's edge**, is adequate to provide shading canopy to enhance the aquatic environment, maintain wildlife habitat, and control pollution via stormwater filtration (USDA, 1999).

- **Zone 1** is a *streamside*, undisturbed area dominated by woody plants, and is intended to moderate water temperature and provide aquatic habitat. This Zone is measured from the *active stream channel*.

Suggested Minimum width = 15 feet.

- **Zone 2**, also dominated by woody plants, provides additional distance from the creek and can be adjusted up or down for specific wildlife habitat and/or recreational requirements. The dense cover required in Zone 1 is not as important away from the water's edge.

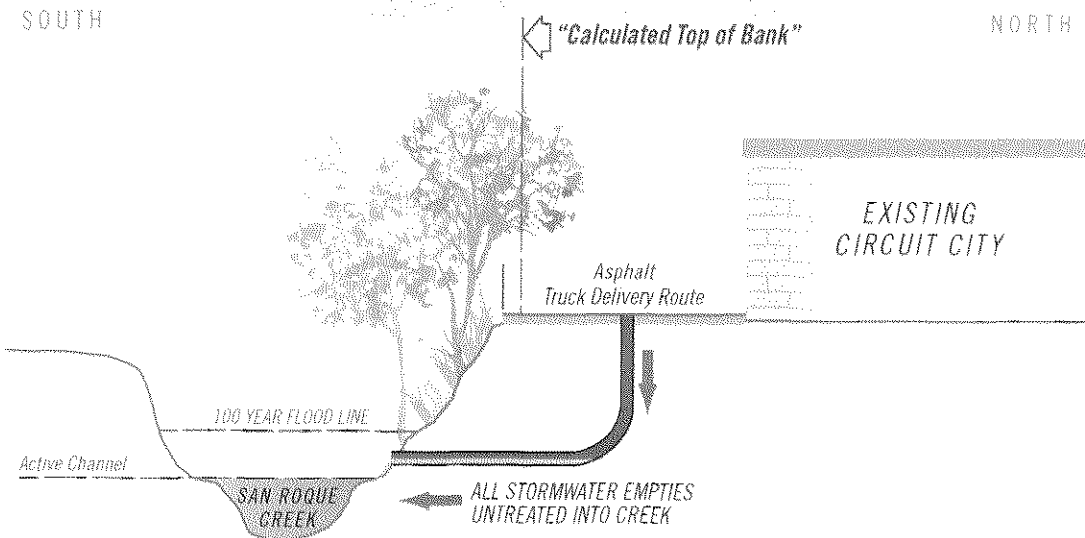
Width requirements vary based on site-specific management goals.
Often this Zone is eliminated in urban environments.

- **Zone 3** is to filter stormwater, and thus this strip should consist primarily of a grassy or densely mulched cover of plants or other

EXISTING CONDITIONS

SOUTH

NORTH

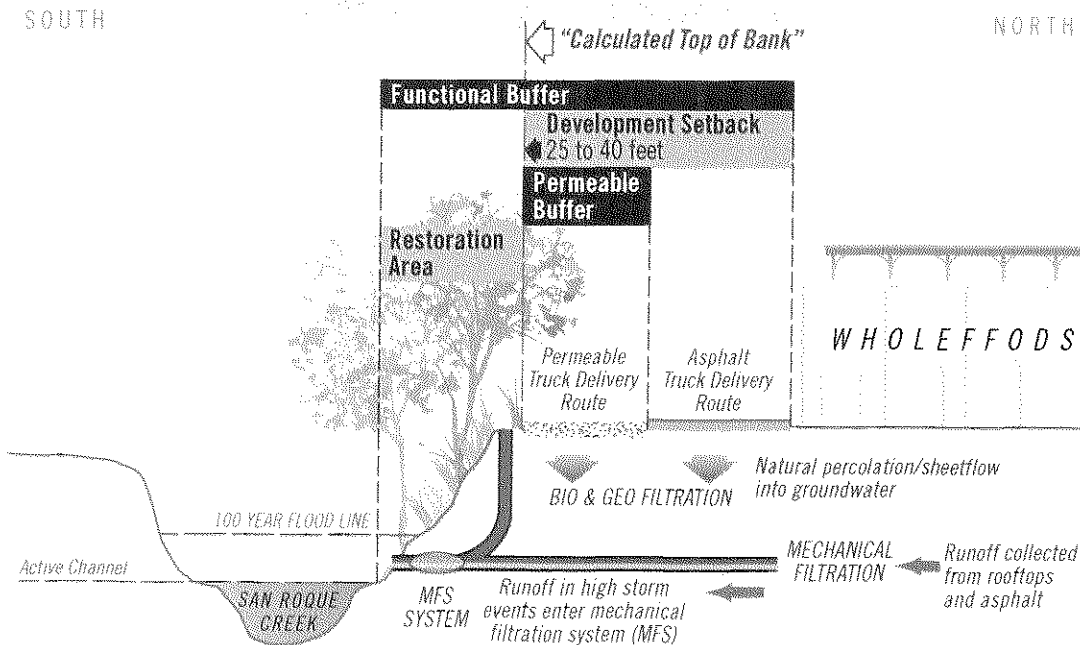


- ① Developed Setback less than 20 feet in places.
- ② Asphalt Truck Delivery Route flanks creek.
- ③ Stormwater is untreated.

PROPOSED CREEKSIDE ENHANCEMENTS (May 2005)

SOUTH

NORTH

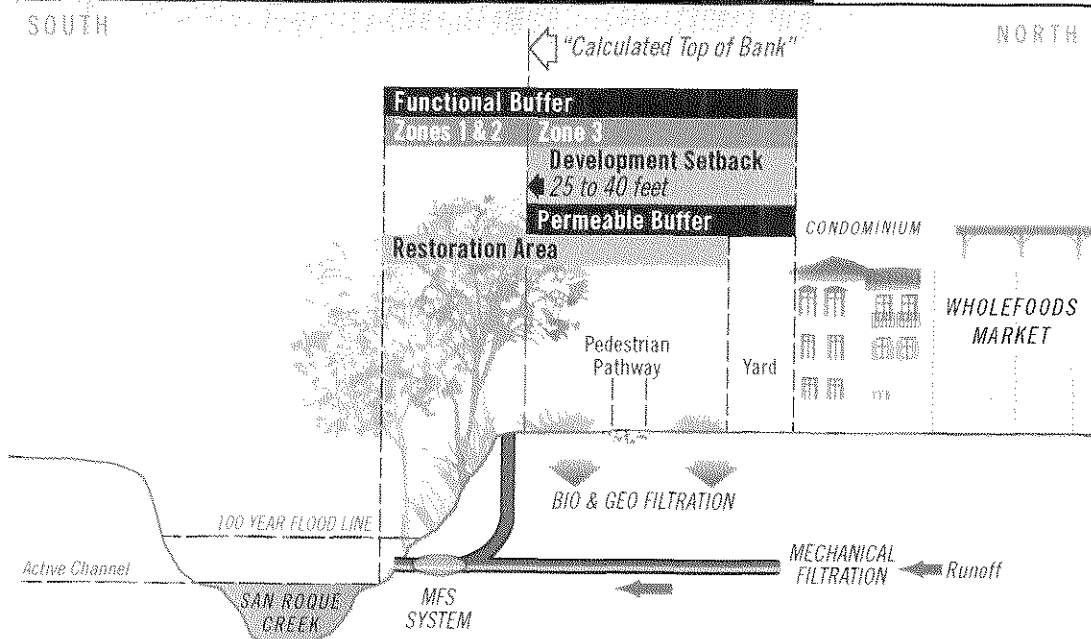


- ① Development Setback increased.
- ② Stormwater treatment added.
- ③ Restoration Plan proposed.
- ④ "Functional Buffer" includes: Restoration Area + Permeable Truck Route + Paved Truck Route.

PROPOSED CREEKSIDE ENHANCEMENTS (October 2005)

SOUTH

NORTH

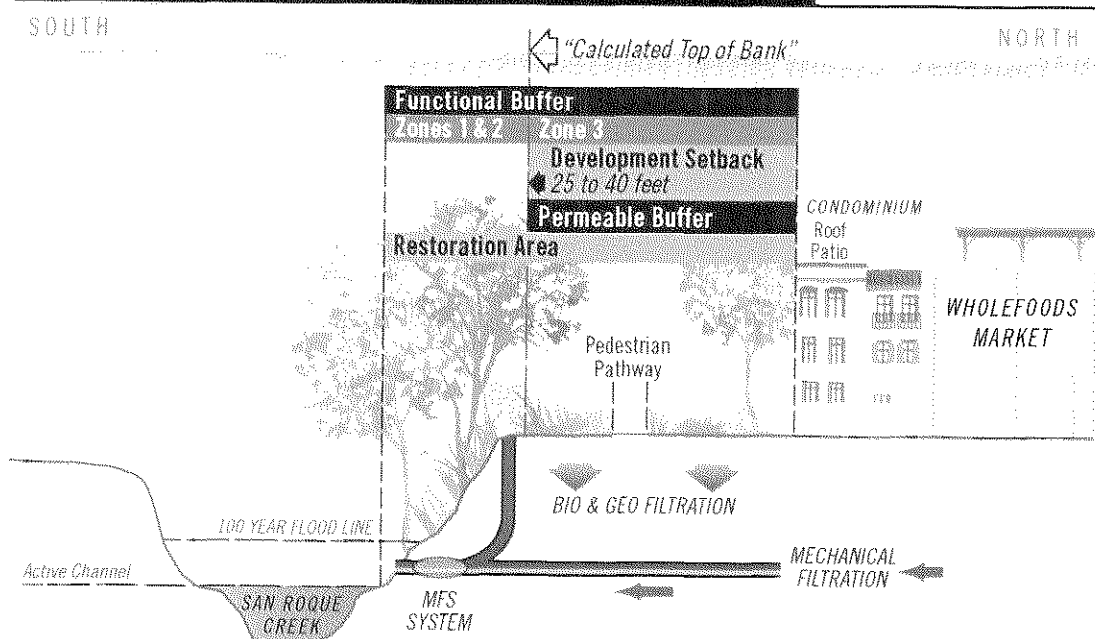


- ① Truck Route(s) and asphalt eliminated.
- ② "Permeable Buffer" increased to incorporate entire setback.
- ③ "Restoration Area" increased.
- ④ "Functional Buffer" = Restoration Area + Yard.

CURRENT PROPOSED CREEKSIDE ENHANCEMENTS (March 2006)

SOUTH

NORTH



- ① Front yards eliminated.
- ② Restoration Area and increased planting density.
- ③ "Functional Buffer" = Restoration Area

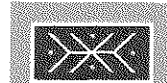
FIGURE 2A

State and Hitchcock Center
Re-Development Project

Comparison of Existing and
Proposed Creekside Enhancements
(San Roque Creek)

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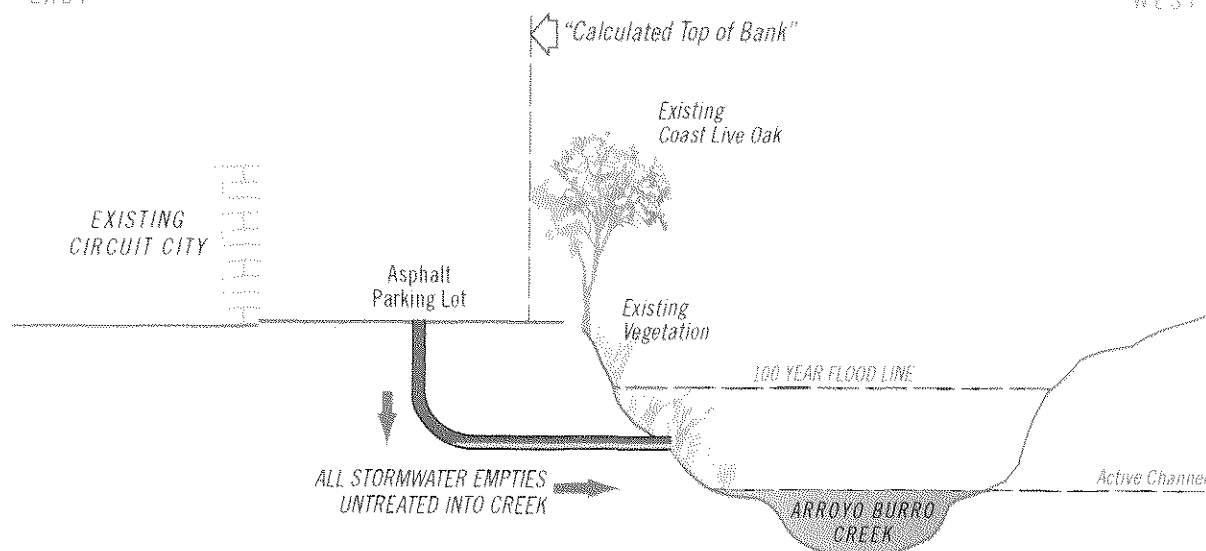


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EXISTING CONDITIONS

EAST

WEST

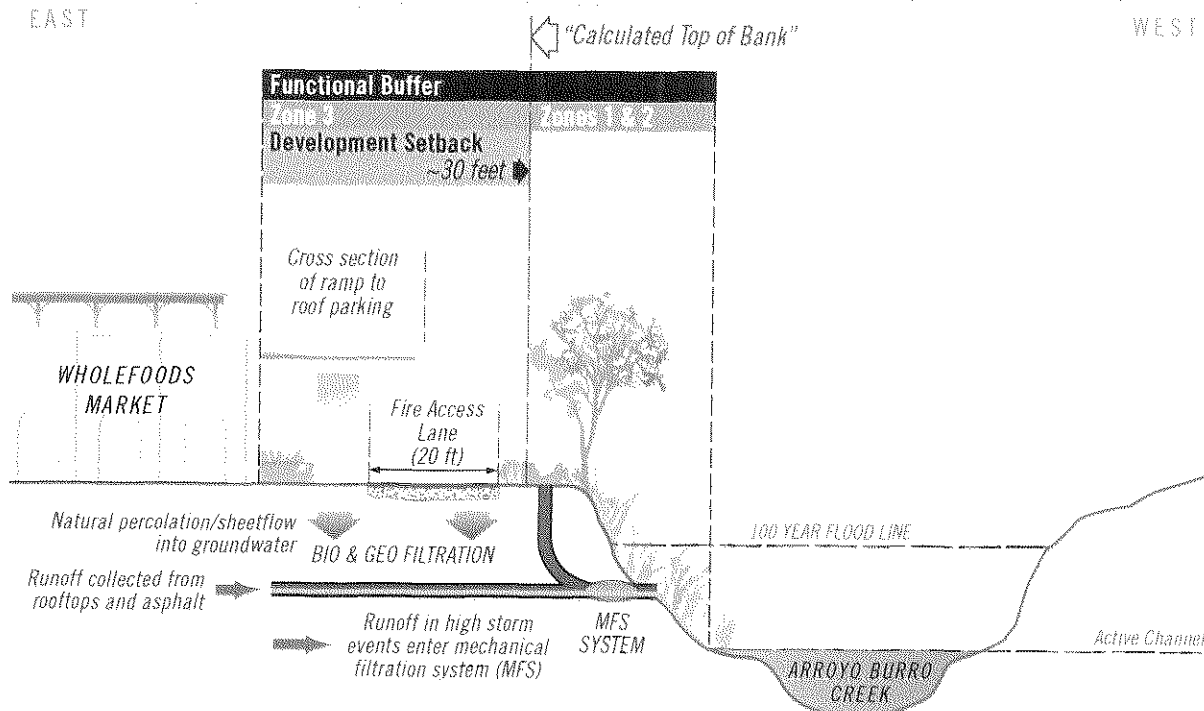


- ① Asphalt Truck Delivery Route flanks creek.
- ② Stormwater is untreated.

PROPOSED CREEKSIDE ENHANCEMENTS (May 2005)

EAST

WEST

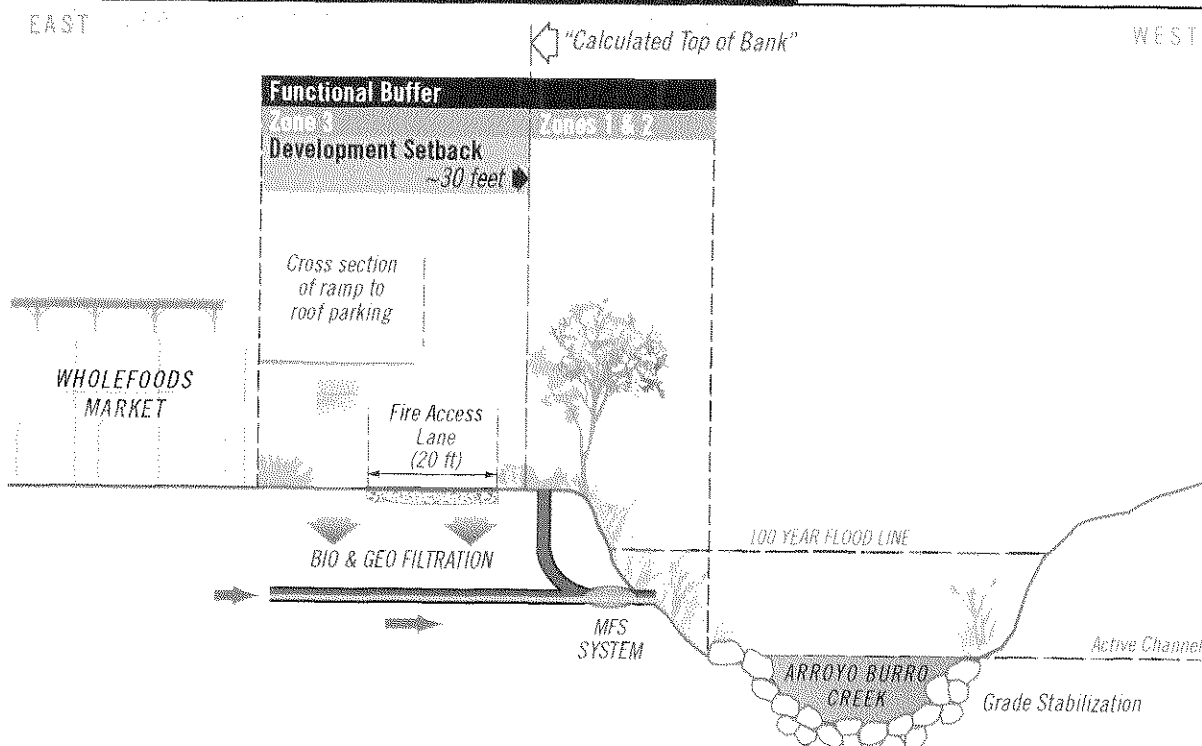


- ① All asphalt removed along Development Setback.
- ② "Functional Buffer" includes Native Restoration and Permeable Fire Access Road.

PROPOSED CREEKSIDE ENHANCEMENTS (March 2006)

EAST

WEST



- ① Grade Stabilization/Restoration Plan Proposed for Arroyo Burro Creek.

FIGURE 2B

State and Hitchcock Center
Re-Development Project

**Comparison of Existing and
Proposed Creekside Enhancements
(Arroyo Burro Creek)**

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A third agency, the Regional Water Quality Control Board, would also require a Certification if permitting is required through the ACOE.

An informal meeting with a representative with the National Marine Fisheries Service at the site to discuss the Rehabilitation Plan established that work within the creek bed at this location would likely *not* require a "Formal Opinion", as the project is very unlikely to have any affect on steelhead (NMFS, 2006). A Section 7 consultation with the NMFS would be conducted in conjunction with the 404 application through the ACOE, pursuant to the Federal Endangered Species Act.

2.0 RESTORATION PLAN OVERVIEW

The Creekside Restoration, Monitoring and Maintenance Plan outlines the species and general locations of plant material, planting procedures and irrigation requirements for the Restoration Area (from the active channel to the first building along both San Roque and Arroyo Burro Creeks), and contains a monitoring and maintenance schedule. Three important tenets of the Plan are highlighted below:

- *The Restoration Area shall be maintained for the life of the project.*

Monitoring and annual reporting (sent to the City of Santa Barbara, the CDFG and the ACOE) will continue for five years following planting. However, maintenance shall be ongoing.

- *All aspects of site preparation, planting, and maintenance shall be overseen by a professional, third party, restoration biologist.*

The third party monitor (or trained representative thoroughly familiar with the native flora) must be onsite during exotic plant eradication and initial planting, and shall coordinate with the maintenance crew to meet onsite periodically during the monitoring period. (See Section 6 for additional information regarding Monitoring.)

- *Restoration Scheduling.*

Due to the restrictions of bird nesting season (February 15 through July 1), large-scale invasive tree and debris removal will need to be accomplished within the July through January timeframe.

2.1 Plan Objectives and Components

The objectives of the restoration program are to:

1. **Improve habitat value** (food, nesting sites, roosting sites, cover) by increasing native plant cover and diversity.
2. Establish a **visual and physical barrier** between the “public” areas of the project and the restored riparian “wildland” along San Roque and Arroyo Burro Creeks.
3. Present a thick vegetative buffer along the top of slope of San Roque Creek that **absorbs night lighting and daytime human noise** that may originate from the condominiums.

The program components include:

1. *Site preparation* includes removal of non-native shrubs, vines, and most trees throughout the Restoration Area, from the toe of slope to the permeable surfaces. Preparation also includes installing the fill and rock stabilization designed in the *Rehabilitation Plan* on Arroyo Burro Creek, which may occur before, after, or concurrent with work along San Roque Creek.
2. *Planting and irrigation installation.* Temporary irrigation along the top and slope downward.
3. *Maintenance program* for the life of the project, to include periodic weeding and removal of deadwood and accumulated ladder fuel to ensure adequate vegetation management.
4. *Monitoring schedule* ensures that minimum standards for survival are met throughout a five-year period.

2.2 Invasive Species to Avoid in the Landscape Plan

The Landscape Plan shall not incorporate invasive species such as: English ivy (*Hedera helix*) and Algerian ivy (*Hedera canariensis*), Periwinkle (*Vinca major*), Iceplant (*Carpobrotus edulis*), Little leaf cotoneaster (*Cotoneaster mycophyllus*), Licorice plant (*Helichrysum petiolare*), Pampas grass (*Cortaderia selloana*), French broom (*Genista monspessulana*), Scotch broom (*Cytisus*

scoparius), and Spanish broom (*Spartium junceum*). A list of other invasive species can be found at the California Exotic Pest Plant Council website (www.caleppc.org).

3.0 SITE PREPARATION

3.1 General Notes on Weed Removal

Chemical and manual methods of weed removal will be used. Manual removal can be used where infestation is light, or when annual plants can be cut down just before seed matures. A weed whacker does the job quickly for annuals. Chemical treatment will be necessary where woody plants cannot be excavated or stump-ground due to slope constraints, or where there are extensive stands of perennial weeds. Full foliar coverage is required for an effective kill. A second herbicide treatment is often required.

Large-Scale Vegetation Removal and Nesting Season

1. Any work involving large-scale vegetation removal and/or tree removal in the restoration areas adjacent to the creeks shall commence outside of the defined breeding season for birds (February 15 to July 1).
2. If large-scale vegetation removal must start during the breeding season (February 15 to July 1), a site survey shall be conducted by a qualified wildlife biologist to determine if nesting birds are present.
2. Construction or eradication activity shall not occur within 200 feet of *active* raptor or other sensitive avian nests located during this survey until young have left the nest.
3. Birds choosing to construct nests within 200 feet of construction are expected to be acclimated to this level of disturbance and work can continue.

Herbicide Restrictions: The only chemical approved for use in the Restoration Area is glyphosate-based (trade name Rodeo or Roundup Pro). The active ingredient in Roundup Pro, glyphosate, is identical to that of Rodeo. However, Roundup Pro contains a surfactant to aid in penetration of leaves or waxy plant cuticles. This may be applied by two types of application equipment: 1) A backpack sprayer with a nozzle adjusted to low volume

directed spray under low pressure for medium to large sized areas for vine (groundcover) treatment; and 2) A hand-held spray bottle for cut stumps. The concentration of the Rodeo or Roundup Pro in the spray formulation will vary by species and information is contained on the product label.

All of the formulations of Rodeo or Roundup Pro shall contain a brightly colored blue or purple dye. Additional surfactant shall be added to the Roundup Pro mixture at 0.5% surfactant (0.66 ounces surfactant per gallon of formulation). Surfactant used with Rodeo must be aquatic approved. The following restrictions shall apply:

1. All maintenance personnel who will be applying herbicide must be trained specifically in the use of these chemicals.
2. Rodeo must be used within 25 feet of the active channel.
3. No spraying other than with a hand held spray bottle shall be allowed when wind speed exceeds 5 m.p.h.
4. No spraying shall be allowed within 24 hours after rainfall or when rainfall is expected within the following 24 hours.
5. Native plants shall be protected from spray drift.
6. All spraying must be monitored by a trained restoration biologist.
7. Target plants shall not be disturbed until the Rodeo or Roundup Pro has taken effect (approximately 2-3 weeks depending on the time of year). The project restorationist must be consulted if there is any question as to the timing of clearing following spraying.

3.2 Exotic Species Removal

General Notes: The persons performing the eradication or herbicide spraying (not the contractor or crew superintendent) shall walk the site with the monitor to ensure an understanding of the species to be removed and methods used.

Order of Removal: Large trees and shrubs shall be removed along both creeks first. Prior to any eradication work, the site restorationist (monitor) shall clearly mark (with paint or flagging) all trees and large shrubs scheduled for

removal. These shall be felled and stump grinded. Trees and large shrubs can be chipped onsite, saved and used as mulch. Chips may be used in other portions of the site where mulch is required.

San Roque Creek: Groundcovers shall be treated next. Shrubs and small trees that will be excavated can be treated following a minimum of two weeks after groundcover treatment, to allow the herbicide to translocate to the groundcover roots before the inevitable aboveground disturbance during the continued eradication process. A second (and possibly a third) treatment will be required to fully eradicate the groundcover.

Arroyo Burro Creek: The *Rehabilitation Concept Plan* (Questa, 2006 - see Appendix) along Arroyo Burro Creek entails raising the bed approximately 5 feet, installing a series of 1-foot high boulder grade controls across the bed, removing the existing wire revetment on the east bank, and embedding large boulders along the toe of the same slope. This major construction will leave some portion of both creek banks bare (grubbed), some portions of the banks recompacted, and some portions undisturbed. Target exotics within undisturbed areas shall be treated in a similar fashion as described above for San Roque Creek. This can occur before or during construction.

Species Included:

Groundcover: English Ivy, Periwinkle, German Ivy, Nasturtium, Palm, Myoporum.

Trees: Eucalyptus, Shamel Ash, Peppertree, Acacia.

Ornamental Shrubs: Cotoneaster, Bottlebrush, Pittosporum.

Giant Reed (*Arundo donax*)

Poison Oak (*Toxicodendron diversilobum*), a native species, shall also be (temporarily) treated during the initial eradication process, to facilitate later planting and monitoring.

Annual or biannual weeds shall be eradicated during routine *maintenance* when encountered. **Naturalized grasses** (including *Avena*, *Bromus*, *Hordeum*, *Lolium*, *Oryzopsis*, *Polypogon*, and other non-noxious grass will be tolerated. **Pampas grass** and **veldtgrass** shall be eradicated if noted in the future.

Areas Treated

San Roque Creek -- Starting at the toe of slope (or property line) upwards to the building. **Arroyo Burro Creek** -- Includes all area from the toe of slope to

the building. Also includes disturbed (and planted) areas located on adjacent property (the later *maintenance* during the 5-year monitoring period only).

Exotic Species Description and Eradication Methods:

The following invasive non-native species are either currently at the site or are expected to be a future problem at the site and shall be eradicated throughout the Restoration Areas.

Castor Bean - *Ricinus communis*

Species Characteristics: Perennial, erect shrub to 15' tall. Heavy seed producer - seed persists for at least two years.

Eradication Methods and Schedule: For best results, apply herbicide before seed is viable between mid July and fall. Spray foliage with 2% Roundup (good coverage will increase effectiveness) or cut stems for removal off site and immediately treat stumps with 15% Roundup. Check area next spring for seedlings. Seedlings - hand pull as soon as recognizable.

Exotic Trees and Large Shrubs

Including Shamel Ash, Pittosporum, Peppertree, Cotoneaster, Bottlebrush, Myoporum.

Eradication Methods and Schedule: Mature plants - bag seed heads for removal. Cut trunk and grind roots. If roots are to be left in place for erosion control on steep slopes, cut stems within 1 foot of ground and hand spray wound **immediately** with 100% Roundup and brightly colored dye. For best results, cut and apply the Roundup and dye solution from mid-July to fall when plant is translocating nutrients to roots. Seedlings - hand pull as soon as recognizable.

Eucalyptus - *Eucalyptus* sp.

Species characteristics: Erect tree to 200 feet. Inhibits the germination

Eradication Methods: Seedlings - hand pull or dig up if small. If larger than one-half inch in diameter, cut at base and treat stump immediately with 100% Roundup. If larger than 2 inches at base, cut to within 4 feet of ground. Remove cut trunk, branches, and debris. Recut close to ground level when ready to treat. **Immediately** insert 100% Round-up in nail holes made around freshly cut stump cambium. Remove all green branches on cut stumps, or cut trunk and grind stump.

Eradication Schedule: All of the Eucalyptus shall be removed during the first exotic plant removal treatment, followed by debris removal and then planting of native trees.

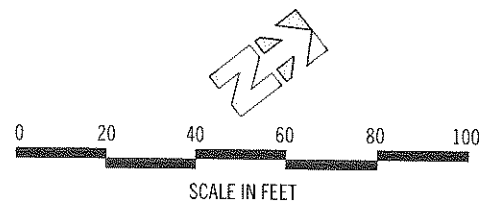
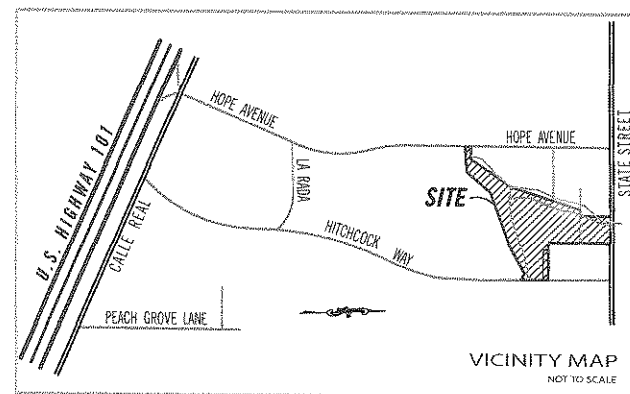
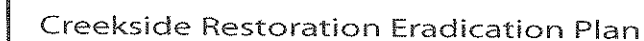


FIGURE 3
State and Hitchcock Center
Re-Development Project

Eradication Plan

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ERADICATE:

Non Native Trees

- Shamel Ash
Blue Gum Eucalyptus
— Single

Acacia ◆ Acacia

Ornamental Shrubs

-  Hedge: Brazilian Peppertree,
Cotoneaster, Pittosporum

- Bottlebrush** ♦ **Bottlebrush**

- Palm ♦ Palm

- Myoporum* ◆ *Myoporum*

Grasses

-
- Giant Reed (
- Arundo donax*
-)

Groundcover

- English Ivy, Periwinkle and/or Nasturtium

Also eradicate:

Poison Oak (*Toxicodendron diversilobum*) during initial site preparation phase only to facilitate planting and monitoring.

PRESERVE: NATIVE VEGETATION

Canopy Trees

- Coast Live Oak (*Quercus agrifolia*)
 ● 28" — Single (# indicates DBH)
 ● Western Sycamore (*Platanus racemosa*)
 ■ Arroyo Willow (*Salix lasiolepis*)
 Ju ● Walnut (*Juglans* sp.)

Small Trees / Shrubs

- Ce●** Mountain Lilac (*Ceanothus megacarpus*)
To● Toyon (*Heteromeles arbutifolia*)

Groundcover (to remain as feasible)

- California Blackberry (*Rubus ursinus*)

- * All eradication to be conducted under the direction of a restoration biologist familiar with the native flora.

- The only chemical approved for use in the Restoration Area is glyphosate-based (trade name *Rodeo* or *Roundup Pro*) herbicides. Any application within 25 feet of the active channel (water) must contain surfactant labeled for aquatic use. See text for further directions.

Fennel - *Foeniculum vulgare*

Species Characteristics: Perennial, erect herb with large below-ground structure. Dies back to ground annually. Abundant seed producer - seed persists at least two years.

Eradication Methods and Schedule: Mature plants - If seed is not ripe, cut stem near base and immediately spray stumps with 15% Roundup. If seed is mature, cut stems, bag seed, and remove from site. Treat stump with Roundup as described above. Wait 6 weeks for regrowth and spray with 3% Roundup. May require multiple treatments. Seedlings - hand pull as soon as recognizable.

German Ivy- *Senecio mikanioides*

Species Characteristics: Perennial, prostrate or climbing vine. Ivy-shaped leaf with yellow daisy-like flower. Aggressive grower - can smother trees. Abundant seed producer - seed persists at least two years.

Eradication Methods and Schedule: Treat when plants are flowering, typically from February into spring. Hand pull German ivy vines from native trees or completely cut vines growing up native trees from rooted portions. Spray leaves with a 2% solution of Roundup Pro (or 1.5% solution of Rodeo), 0.5% surfactant by volume (0.66 ounce surfactant per gallon water), and a brightly colored dye. Spot spray any ivy entangled with blackberry. (Roundup/Rodeo will not kill willow trees. However, chlorosis may be apparent on affected leaves.) Seedlings - hand pull as soon as recognizable. Will require multiple treatments.

Giant Reed - *Arundo donax*

Species Characteristics: Perennial giant grass forming clonally clumps to 20' in height. Limited seed production. Primary means of spread is by uprooted rhizomes taking root in new locations following storms.

Eradication Methods and Schedule: During spring and early summer, cut stems to 6" in height, **immediately** treat stumps with 30% Roundup, and remove stems from site. Best results with early spring cutting/spraying. Check for regrowth from rhizomes in 8-12 weeks. Cut regrowth when two feet tall or taller and immediately treat stumps with 30% Roundup. If regrowth occurs again, wait until following spring to cut and treat. First cutting should occur after April 1st and second cutting should occur before August 1st.

Ice Plant - *Carpobrotus edulis*

Species Description: Perennial, prostrate succulent growing in dense mats. Aggressive invader that excludes all other species. Abundant seeder. Small stems will easily root.

Eradication Methods and Schedule: Clumps - spot spray with 3% solution Roundup in spring and summer (to early fall) months. Wait four weeks and spray all portions of clump still alive. Wait four weeks and remove dead thatch and top two inches to seed-laden soil, or leave thatch in place. Seedlings - hand pull as soon as recognizable. All living material must be removed.

Mustard and Radish - *Brassica spp.* and *Raphanus spp.* Other Annual Weeds

Species Characteristics: Annual, erect plants with abundant seed production. Mustard - yellow flowers, radish - white or purple flowers.

Eradication Methods and Schedule: Timed mowing (weed whipping) just before seed matures. Areas of infestation may also be sprayed with 2% Roundup in advance of seed formation. May be hand cleared after Roundup has killed plants. Annual spot spraying of infested areas may be required if seed is entering site from adjacent areas.

Pampas Grass - *Cortaderia spp.*

Species Characteristics: Large, perennial bunchgrass imported from South America. Abundant seed producer and aggressive invader of disturbed ground. Seed persists at least three years.

Eradication Methods and Schedule: Mature plants - cut and bag seed heads immediately for removal. Manually remove plant and all roots (root system is shallow). Seedlings - hand pull as soon as recognizable. Plant is easily removed by hand within one year of growth.

Periwinkle - *Vinca major*

Species Characteristics: Perennial, prostrate, shade loving groundcover that spreads through arching stolons that root on contact with ground. Blue flower.

Eradication Methods and Schedule: Cut above-ground portions of plant six inches from roots, immediately spot spray on cut stems. Wait six weeks and check for regrowth, spot spray shoots and leaves with 3% Roundup.

3.3 Debris Removal and Erosion Control

Eucalyptus Debris Removal: Following exotic plant removal, all Eucalyptus debris shall be removed from the site to help enable introduction of native species. Eucalyptus has been shown to inhibit the germination and growth of other species by producing an allelopathogen, or chemical compound, that is washed into the soil with rainwater. Removal of Eucalyptus debris (leaves and bark) will reduce the allelopathic affect and allow the

chemicals to leech out of the upper soil layers. Removal of this deadwood will also reduce the fuel available to feed a wildfire

Erosion control All erosion control will be in place by October 1. Construction along Arroyo Burro Creek will likely result in bare and/or recompacted slopes requiring temporary surface stabilization. Coir netting, and/or straw wattles (at 10-20 foot intervals) shall be installed along disturbed areas of the creek bank to slow and dissipate any surface runoff. The specific method of bank erosion control will depend on the site-specific requirements and shall depend on the final disturbed slope angle and length of disturbed areas. Erosion control along San Roque Creek will consist of sediment barriers above the toe. The need for erosion blankets is not anticipated.

4.0 PLANTING PLAN

Vegetation shall be established by several methods: planting container material along both drainages and upper buffers; interplanting boulders with willow cuttings and/or liners along Arroyo Burro Creek, and seeding bare slopes along Arroyo Burro Creek. A preliminary Planting Plan is shown in Figure 4.

4.1 *Interplanting Boulders (Arroyo Burro Creek)*

Willow shall be incorporated along the boulders positioned at the toe of Arroyo Burro Creek. Either live willow cuttings or rooted tree liners (or both) will be used. Live cuttings can be tamped into the soil below the boulders, laid parallel to the creek bank, the rooting end pointing downstream. Boulders shall be placed one by one (not dumped) on top. Native soil will be packed and worked into crevices after each layer of rock. Openings, approximately 2 feet in diameter, will be created to accommodate container/liner material. The locations of these openings will be random, at approximately 6-8 foot centers, and will be determined in the field. If willows are not ready for outplanting at the time of construction, openings shall be flagged or otherwise marked in a manner that will endure anticipated storms.

4.2 *Seeding (Arroyo Burro Creek)*

The following seed mix (Table 1) is designed to incorporate species that provide a "nurse" or "cover" crop. These plants (*Plantago*, for example) will not persist after larger and slower-growing shrubs have established. Seed will be sown *immediately* following earthwork, and before erosion control blankets

are installed. Seed may be hydroseeded or hand broadcast. If seed is broadcast it should be worked into the soil with a rake or some other device.

Table 1: SEED MIX

For disturbed soils along Arroyo Burro Creek

<i>Achillea millefolium</i>	2	95/70
<i>Artemisia douglasiana</i>	2	10/50
<i>Baccharis salicifolia</i>	4	2/50
<i>Bromus mollis</i>	6	95/85
<i>Mimulus longiflorus</i>	4	5/70
<i>Encelia californica</i>	4	40/60
<i>Eriophyllum confertiflorum</i>	4	35/75
<i>Hazardia squarrosus</i>	3	50/70
<i>Leymus condensatus</i>	3	70/80
<i>Lotus scoparius</i>	4	90/80
<i>Lupinus succulentus</i>	4	95/85
<i>Phacelia ramosissima</i>	3	95/80
<i>Plantago insularis</i>	30	NA
<i>Vulpia microstachys</i>	8	90/80
Total LBS/ACRE	81lbs/ac	

If possible, slopes will be crosshatched to create shallow contour lines across the slope. These small furrows will provide increased shade and moisture, and will catch wind-blown seed and small pieces of mulch.

4.3 Container Planting (both drainages)

- All material (except for occasional species for the "Butterfly Garden") shall be derived from central-southern California stock (coastal Santa Barbara to northern Los Angeles Counties).
- Adequate lead-time is required to collect and grow this material. Most of the specified species are available from native plant growers only. Since seed collection periods vary from species to species, a year's lead-time is often required to procure seed and grow the material.
- Placement of container plants from the top of slope down to the toe of slope may be done in the field due to the number of unmapped constraints, including hard bank protection (gabion walls), boulders, specific shading situations, and location of existing retained plants.

- Placement of plants from the top of slope inward towards the development would not be hampered by existing vegetation and will be finalized by the project Landscape Architect (Susan Van Atta and Associates) using the plant list provided in this report, or approved substitutions.
- Planting groups will be clustered to allow for openings. The interface between woodland, shrubland, and openings provides foraging and nesting habitat for the greatest number of wildlife species.
- Material can be successfully planted at any time of year as long as irrigation is immediately provided and increased if needed (see below). Plants shall be inspected for proper root development before planting. Container material and planting holes shall be well watered just prior to planting. Plants shall be watered following planting by filling the planting basin twice.
- Planting holes shall be twice the diameter of, and at least 6 inches deeper than, the container. Holes shall be backfilled with native soil and 4 slow release Gro-power fertilizer tablets (or equivalent) per seedling. Fertilizer shall not come in contact with seedlings.

4.4 Irrigation

Drip irrigation systems shall be installed to supplement rainfall for all container plants and cuttings situated above the 25-year flood line. The system shall be in place immediately following planting. (Irrigation lines installed below this level have a high chance of being torn out during winter storms. Any material planted below this point must be hand watered during dry months until established, which may be two-three years depending on the annual rainfall.)

Although all of the species used in the restoration program will eventually be able to grow and reproduce without supplemental water, all container material must be irrigated for a number of years to establish healthy root systems. Water needs will change throughout the year. Higher winds and temperatures (and the resulting increased evapotranspiration rate) will necessitate increases in irrigation needs. Cool temperatures and natural precipitation will reduce irrigation needs. Watering shall be performed in the early morning or late afternoon.

All irrigation will be installed above-ground. Each container plant shall receive one, 1-gallon emitter. Irrigation should be delivered about once a week for at least one year. Irrigation shall be reduced to once every two weeks after this initial establishment period. Regular irrigation will continue for at least 3 years, and then slowly taper off over a year's period. The irrigation system shall be dismantled from the top of slope downward following the successful completion of the five-year monitoring program.

4.5 Mulch

Mulch (wood chips from exotics removed from the site or other organic material) shall be applied around the planting areas to help retain soil moisture. Mulch should be 3-4 inches deep when first applied, and extend in a 2 to 3 foot diameter around the tree or shrub.

4.6 Technical Description of Native Plant Species

This section lists trees, shrubs and herbs (by alphabetical order of the common name) suggested for use in the **Creekside Restoration, Monitoring and Maintenance Plan**. Information regarding their growth form, wildlife value, and use for erosion control, diseases, and cultural requirements is given for each species. Other species may also be appropriate.

TREES

WHITE ALDER - *Alnus rhombifolia*

Wildlife Uses - Seeds consumed by goldfinches and other perching birds. Thickets of young trees provide good cover.

Form and Growth - Rounded, erect deciduous tree; 50-90' high, 30-40' wide; pyramidal when young; glossy, toothed leaves; catkins appear in winter; very rapid growth with life span less than 100 years.

Erosion Control - Shallow, invasive roots provide good surface erosion control and bank stabilization.

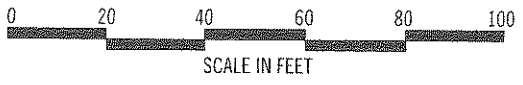
Pests and Diseases - Aphids and caterpillars, not requiring treatment.

Other Problems - Invasive roots may clog and break sewer and water lines and septic systems.

Habitat/Cultural Requirements - Alder requires a year-round source of water and should only be located on the lower slopes. No maintenance is required unless storms break out limbs.

FIGURE 4
State and Hitchcock Center
Re-Development Project

Planting Plan
2/24/06



Arroyo Burro Creek—The Rehabilitation Plan calls for raising the height of the bed, removing the wire revetment, placing rock inter-planted with willow along the toe, and a series of 8 boulder grade controls in the bed.

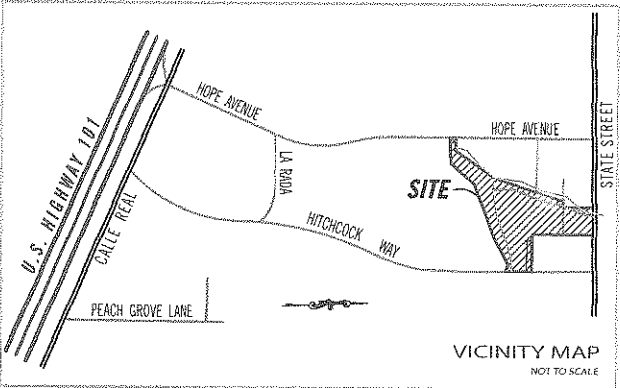
Erosion Control—Disturbed slopes may require temporary erosion control such as jute netting or coir blankets following construction along Arroyo Burro Creek.

Butterfly Garden—This area will contain flowering shrubs and perennial plants that attract butterflies, noted with ** on the plant list.

Plant List

CANOPY TREES (1-15 gallon or as noted)		WOODLAND CURRANTS (1 gallon, ~8 foot centers)	
White Alder	<i>Alnus rhombifolia</i> **	Golden Currant	<i>Ribes aureum</i>
California Walnut	<i>Juglans californica</i>	Fuchsia Flowered Gooseberry	<i>Ribes speciosum</i>
— Existing		White-Flowering Currant *	<i>Ribes indecorum</i>
Western Sycamore	<i>Platanus racemosa</i>	Chaparral Currant	<i>Ribes malvaceum</i> var. <i>malvaceum</i>
— Existing		FERNS (1 gallon, ~8 foot centers)	
Black Cottonwood	<i>Populus balsamifera</i>	Western Sword Fern *	<i>Polystichum munitum</i>
Coast Live Oak	<i>Quercus agrifolia</i>	Giant Wood Fern *	<i>Woodwardia fimbriata</i>
— Existing		GROUND COVER (1 gallon, ~2 foot centers)	
Arroyo Willow	<i>Salix lasiolepis</i> (1 gallon or tree liners)	California Fuchsia	<i>Epilobium canum canum</i> **
— Existing		California Wild Rose	<i>Rosa californica</i>
LOW SHRUBS (1 gallon, ~5 foot centers)		California Blackberry	<i>Rubus ursinus</i>
Sagebrush	<i>Artemisia californica</i> **	Snowberry	<i>Symphoricarpos mollis</i>
California Sunflower	<i>Encelia californica</i> **	HERBACEOUS PERENNIALS (1 gallon, ~2 foot centers)	
California Buckwheat	<i>Eriogonum fasciculatum</i> **	Yarrow	<i>Achillea millefolium</i> **
Purple Sage	<i>Salvia leucophylla</i> **	Milkweed	<i>Asclepias californica</i> **
Black Sage	<i>Salvia mellifera</i> **	Narrow-Leaf Milkweed	<i>Asclepias fascicularis</i> **
TALL SHRUBS/SHORT TREES (1 gallon, ~10 foot centers)		Butterfly Mint Bush	<i>Monardella sp</i> **
Manzanita	<i>Arctostaphylos glauca</i> **	Scarlet Bugler	<i>Penstemon centranthifolius</i> **
Ceanothus	<i>Ceanothus megacarpus</i> , <i>C. spinosus</i> **	Matilija Poppy	<i>Romneya coulteri</i>
Mountain Mahogany	<i>Cercocarpus betuloides</i> **	Goldenrod	<i>Solidago californica</i> **
Toyon	<i>Heteromeles arbutifolia</i> **	SEED MIX (see text)	
— Existing			
Holy Leaf Cherry	<i>Prunus illicifolia</i>		
Coffeeberry	<i>Rhamnus californica</i>		
Lemonadeberry	<i>Rhus integrifolia</i>		
Laurel Sumac	<i>Rhus laurina</i>		
Elderberry	<i>Sambucus mexicana</i> **		

* Plants derived from local stock may not be available.



BLACK COTTONWOOD - *Populus balsamifera ssp. trichocarpa*

Wildlife Uses - Seeds consumed by perching birds, squirrels, and field mice; roosting trees for various riparian bird species, and older trees utilized by cavity nesting birds.

Form and Growth - Rapidly-growing, open crowned, erect, deciduous tree; 40-120' high, 30-35' wide; glossy, triangular toothed leaves; catkins appear before leaves in spring; lifespan to 100 years.

Erosion Control - Shallow and deep roots stabilize banks and slopes.

Pests and Diseases - Canker, leaf spot, wetwood (bacterial infection), and mistletoe.

Other Problems - Female trees release masses of cottony seeds, invasive roots can clog drains.

Habitat/Cultural Requirements - Cottonwoods require a year-round source of subsurface water and tolerate a wide range of soil types. No pests or diseases require treatment.

COAST LIVE OAK - *Quercus agrifolia*

Wildlife Uses - Acorns are eaten by a wide variety of birds and mammals. Perching birds utilize this species, as well as cavity nesting birds and cavity utilizing mammals.

Form and Growth - Rounded, erect evergreen tree; 30-70' high, 20-100' wide; oval, leathery dark green leaves; acorns mature in one year; lifespan 200 years plus.

Erosion Control - Deep taproot provides good slope retention.

Pest and Diseases - Oak leaf moth causes defoliation in spring and summer months. Also susceptible to weevils, borers, gall wasps, whiteflies, aphids, mites, and crown rot. Oak root fungus (*Armillaria mellea*) infects roots, but is not a problem unless there is summer irrigation.

Other Problems - None.

Habitat/Cultural Requirements - Coast live oak prefers deep, well-drained soils and is very drought tolerant at maturity. Intolerant of standing water and summer irrigation, which can cause a fatal attack by the oak root fungus. Changes in grade and/or compaction between the trunk and the dripline may damage ability of feeder roots. No cultural treatments required.

ELDERBERRY - *Sambucus mexicana*

Wildlife Uses - Berries are excellent food for a wide variety of birds and mammals.

Form and Growth - Rapidly-growing, rounded, erect, deciduous shrub; 8-25' high, 5-20' wide; compound, green leaves; white flower clusters and bluish berry clusters; rapid growth to maturity; lifespan to 50 years.

Erosion Control - Invasive root system provides good erosion control and some slope stabilization.

Pests and Diseases - Aphids and one beetle.

Other Problems - Invasive roots can clog sewers and septic systems.

Habitat/Cultural Requirements - Elderberry prefers full or partial sun on well-drained alluvial soils. Drought and flood tolerant once mature. Somewhat tolerant to tidal intrusion into ground water. No cultural treatments required.

TOYON - *Heteromeles arbutifolia*

Wildlife Uses - Berries are excellent food for a wide variety of birds and mammals.

Form and Growth - Rounded, erect evergreen shrub or small tree; 5-30' high, 5-20' wide; oblong, toothed, dark green leaves; white flowers in terminal clusters produce clusters of red berries; lifespan to 50 years.

Erosion Control - The deep and extensive root systems provide excellent erosion control.

Pests and Diseases - Susceptible to fire blight, rot, sooty mold, fungal leaf diseases, and leaf miners.

Other Problems - The flowers can attract bees.

Habitat/Cultural Requirements - Toyon prefers well-drained soils and can tolerate some summer irrigation under these conditions. Tolerates full sun and summer drought when mature. Toyon can be attacked by root rot fungus if the soil is poorly drained and the attack often is fatal. Toyon is usually infected with aphids and the droppings of these insects cause sooty mold to grow on the leaves. If this is visible from paths, it can be hosed off with high water pressure and the aphids must also be sprayed.

WESTERN SYCAMORE - *Platanus racemosa*

Wildlife Uses - Cavity nesting birds and cavity utilizing mammals use sycamore to establish homes in, perching birds use for roosting.

Form and Growth - Rounded, erect, deciduous tree; 40-90' high, 30-60' wide; deeply lobed, light green leaves; fast growth when young; life span to 150 years.

Erosion Control - Shallow and deep spreading roots provide good bank stabilization and some surface erosion control.

Pests and Diseases - *Anthracnose ubiquitous* (blight), mites, sycamore scale, and mildew.

Other Problems - Hairs on new growth may irritate nasal passages on some people if they brush foliage. Leaf drop can be messy.

Habitat/Cultural Requirements - Sycamore prefers deep alluvial soils and requires a subsurface source of water. Anthracnose is not a maintenance problem and no pests or diseases require treatment.

WILLOW - *Salix spp.*

Wildlife Uses - Twigs, foliage and inner bark provide important forage for rabbits and deer, buds eaten by various songbirds, seeds and young shoots eaten by rodents.

Form and Growth - Rounded, deciduous tree or shrub; 5-40' high, 10-30' wide; light green or grayish leaves; catkins in spring; lifespan to 40 years or more in some species.

Erosion Control - Shallow spreading roots provide excellent surface erosion protection and bank stabilization.

Pests and Diseases - Aphids, galls, leaf-spot fungi, powdery mildew, and stem gall wasp.

Other Problems - Willows can cause clogging of sewer and water lines and septic systems. Cottony seeds blowing on the wind can be messy.

Habitat/Cultural Requirements - Willows require a year-round source of water. Highly flood-tolerant, but no drought tolerance. No cultural treatments required or advised. Dead branches should be removed.

SHRUBS AND VINES

CALIFORNIA BLACKBERRY - *Rubus ursinus*

Wildlife Uses - Berries are eaten by most wildlife. Trailing habit provides good cover for smaller mammals and birds.

Form and Growth - Trailing vine with light green leaflets and small thorns scattered over its entire length. The white flowers produce edible berries.

Erosion Control - Continuous ground cover in mature clusters provides good surface erosion control.

Pests and Diseases - Susceptible to aphids, red spider mites, and whitefly.

Other Problems - None known.

Habitat/Cultural Requirements - Prefers partial or total shade but tolerates full sun.

CEANOTHUS (*C. megacarpus* and *C. spinosus*)

Wildlife Uses - Seeds are a good food source for quail, ground squirrels, woodrats, and deer.

Form and Growth - Evergreen, rigid shrubs maturing to 10 feet or taller. Small blue flowers grow in clusters and produce a showy display in early spring.

Erosion Control - Deep roots provide excellent erosion control.

Pests and Diseases - Susceptible to water-borne molds that can cause root rot.

Other Problems - None known.

Habitat/Cultural Requirements - Plant at slightly higher grade than surrounding soils to avoid root rot. Very drought tolerant when established. Will tolerate moisture as long as soil is well drained. Prefers full sun.

CALIFORNIA SUNFLOWER - *Encelia californica*

Form and Growth - Much-branched, rounded shrub to 3 or more feet tall. Large yellow daisy-like flowers in spring.

Erosion Control - Provides erosion control when planted in masses or with other shrubs.

Pests and Diseases - None known.

Other Problems - Overhead watering produces leggy, short-lived plants.

Habitat/Cultural Requirements - Very easily grown from seed and container. Stems and leaves can become quite dried in late summer, but winter rains will promote new growth. Plant can be cut back to remove unattractive die-back.

CALIFORNIA ROSE - *Rosa californica*

Wildlife Uses - Berry is widely eaten by birds and small mammals. Mature plants provide excellent cover.

Form and Growth - Trailing thorny vine-like shrub to 6 feet tall. Attractive pink flowers followed by red hip; pinnately-compound leaves. Fast growing if well rooted and watered.

Erosion Control - Root mass provides good erosion control.

Pests and Diseases - Susceptible to red spider mite, aphids, rust, and whitefly.

Other Problems - None known.

Habitat/Cultural Requirements - Container material must be well rooted before setting out. California rose prefers partial shade to full sun.

COFFEEBERRY - *Rhamnus californica*

Wildlife Uses - The berry-like fruit is an important food source to birds, ground squirrels, and raccoons.

Form and Growth - Attractive evergreen, rounded shrub to 10' tall and similar spread. Leaves are shiny green and approximately 3" long. Lifespan to 40 years.

Erosion Control - The deep roots provide good erosion control.

Pests and Diseases - Relatively pest-free.

Other Problems - None known.

Habitat/Cultural Requirements - May become rangy without some pruning. Does best in well-drained, even rocky soils.

FUCHSIA-FLOWERED GOOSEBERRY and other currants - *Ribes speciosum*

Wildlife Uses - Berries provide a good food source for birds, coyotes, foxes, raccoons, and mice.

Form and Growth - Erect shrub, up to 5', with arching prickly branches and deciduous, lobed leaves. Flowers are bright crimson and hang under stems in late winter and early spring.

Erosion Control - Roots provide good erosion control.

Pests and Diseases - Susceptible to aphids, scale insects, and currant bud mite.

Other Problems - Less attractive after leaves drop in summer.

Habitat/Cultural Requirements - Prefers morning sun with light shade in the afternoon but can tolerate full shade. Do not water once plant has lost its leaves in summer.

LEMONADE BERRY - *Rhus integrifolia*

Form and Growth - Rounded, erect or spreading evergreen shrubs; 3-15' high, 5-15' wide; thick oval leaves; white or pinkish flowers in dense, branched clusters produce reddish fruits; lifespan to 50 years.

Erosion Control - Provides excellent erosion control.

Pests and Diseases - Lemonade berry is very susceptible to verticillium wilt and must be pruned back if branch dieback occurs. Dense planting will allow for expected mortalities.

Other Problems - None known.

Habitat/Cultural Requirements - Drought resistant, but lemonade berry can benefit from watering once a month during summer. Is tolerant of salt spray.

MATILIJIA POPPY - *Romneya trichocalyx*

Form and Growth - Perennial herb appearing from a large rootstock each spring. Leafy stems grow to 8' tall with very showy white flowers.

Erosion Control - Large masses provide good erosion control.

Pests and Diseases - None known.

Other Problems - Spreading habit makes this species best for large background areas.

Habitat/Cultural Requirements - Irrigating in summer stimulates growth. The stems can be cut to the ground each fall to keep it under control. Can be propagated from root cuttings in fall.

SAGE (BLACK AND PURPLE) - *Salvia mellifera* and *S. leucophylla*

Wildlife Uses - Seed is eaten by birds and rodents. Excellent food source for hummingbirds and honeybees.

Form and Growth - Sage is a woody shrub growing to a height of 3'. The whitish foliage is aromatic and the blue-purple flowers are in terminal

clusters. The flowers of purple sage form whorls around the flowering stems.

Erosion Control - Excellent erosion control.

Pests and Diseases - Susceptible to aphids.

Other Problems - May become lanky if not cut back when young.

Habitat/Cultural Requirements - Prefers sunny location. Very drought tolerant once established, but is more attractive with summer water.

SNOWBERRY - *Symphoricarpos mollis*

Wildlife Uses - Berries provide food for thrushes and woodrats.

Form and Growth - Low growing and spreading, vine-like shrub, to 2' in height. White berries are apparent in late spring.

Erosion Control - Dense rhizomes provide good erosion control.

Pests and Diseases - Susceptible to aphids and mildew.

Other Problems - Slow to establish and winter deciduous.

Habitat/Cultural Requirements - Prefers partial shade and relatively moist conditions.

WILD RYEGRASS - *Leymus condensatus*

Wildlife Uses - Seed provides forage for birds and rodents.

Form and Growth - A large native grass often found in clusters, reaching over 6' in height.

Erosion Control - Growing in large stands, the shallow fibrous root systems provide good surface erosion control.

Pests and Diseases - None known.

Other Problems - None known.

Habitat/Cultural Requirements - Very drought tolerant when established.

5.0 MAINTENANCE

Maintenance within the Restoration Area consists of ongoing weeding, irrigation and the removal of deadwood to reduce vegetative fuel *for the life of the project*. The immediate and long-term success of this endeavor will be determined by the on-going maintenance allocated to the program. Although all plant material used in the program is indigenous to the Santa Barbara coastal region, "natural residency" is not an indication of the ease in which these container plants can be established. The restoration program involves removal of a large number of extremely tenacious weeds that have displaced native plants following natural and man-induced disturbances. A reversal of this progressive degradation will demand consistent attention and upkeep.

5.1 Components of Maintenance

Weeding: *Trees and shrubs* – All new growth will be removed at least once every three months.

Groundcover--Any and all shoots (and roots) of exotics *will* be hand-pulled at least once a month until the population is truly eliminated. Large infestation shall be treated with herbicide following recommendations in preceding section.

Irrigation Systems Maintenance and Adjustments: The irrigation system, which will be dismantled from the top of slope downward following the successful completion of the five year monitoring program, shall be checked monthly for proper operations, to include the following:

1. Check and flush lines and drip emitters for proper operations.
2. Check exposed tubing for leaks and kinking.
3. Check pressure regulator for correct pressure.
4. Check controller program for correct operation.
5. Check and clean filters.
6. Clear weed growth around emitter areas.

The watering schedule is best determined by on-site maintenance staff in accordance with observation of plant response and in consideration of seasonal climatic conditions. **Deep, infrequent watering** (no more than once a week tapered to once a month) is recommended.

5.2 Fuel Management

The project site is not located within a designated "high fire area." However, the following precautions should be observed to prevent a buildup of vegetative fuels near the structures and fire access:

- All mature trees *adjacent to the fire access lane* shall be limbed up 13.5 feet from ground level.
- Vegetation *within 20 feet of the fire access lane* shall be limited to native trees and low growing ground cover (California blackberry for example). Individual or small clusters of shrubs can be placed in this area as long as they are separated by at least 15 to 18 feet and not placed where they would become ladder fuel beneath mature trees.
- All deadwood shall be periodically (every three to five years) removed from the Restoration Area.

6.0 MONITORING AND REPORTING

6.1 Monitoring

Initial restoration and revegetation efforts shall be monitored. The monitor shall oversee identification of work area, initial eradication (Eucalyptus and other exotic species removal), and the installation of plants and irrigation systems.

Restoration Schedule: The monitor must be onsite for all initial eradication (large tree and shrub marking) and any herbicide use. The monitor shall inspect the plants for health and root development and be onsite for plant layout and initial planting.

Arroyo Burro Creek: The monitor shall be onsite during boulder and willow planting and any other times required pursuant to agency permits.

Long-term monitoring includes the period following plant installation until minimum performance criteria have been met (five years minimum). The monitor shall periodically visit the site to inspect general health and survival of container plants and weed infestation. *Monitoring will be scheduled to coincide with site maintenance to facilitate communication.*

Long-Term Schedule: After the initial installation, monitoring visits shall occur once every month for the first year, then once every three months for the remainder of the monitoring period. This schedule can be altered depending on the needs of the project.

The **five-year monitoring program** is designed to compile information on the success of exotics eradication and native plant establishment, habitat development and maintenance history. Monitoring shall be conducted by a professional with experience in native plant revegetation. Monitoring visits shall be conducted monthly following initial planting and then taper off during the five-year period. It is important that the periodic monitoring visits coincide with the maintenance crews working hours at the site to help educate the crews about the care of native plants, common weeds and to discuss other problems that come up directly.

A comprehensive field evaluation will be conducted once a year. Data, gathered to determine vegetation establishment, will be collected annually in the spring, when flowering is evident and the maximum number of weed species are likely to be present. Annual survey methods need not be elaborate. A general health

index, survival information and evidence of reproduction (flowering), as well as a visually estimated cover percentage for seeded areas will provide adequate information to determine if replanting is required or if restoration standards have been met. Photographs will be taken each year at repeated positions to document progress. Testing procedures will be described and standardized in the first annual report and specified in each subsequent report. The monitor will also evaluate the need for weeding.

A sample monitoring data form will be included in the first annual report. An example of the parameters to be evaluated and recorded are: species planted, survival and/or percent cover of planted species, seedlings of planted or other native species, species and percent cover of the primary invasive exotic species, and special notes (herbivory, erosion, etc.) on the area.

6.2 Annual Reports

An annual monitoring report will be produced each year after completion of the spring field data collection. The annual reports will present the summation of vegetation monitoring data and general notes describing plant survival, reinvasion by exotic species, the presence of disease and insect pests, and an outline of maintenance performed during the previous year. Two appendices will be attached to each annual report. The first appendix will contain copies of all of the field data sheets from the current monitoring survey. The second appendix will contain a set of photographs taken at set points.

In addition to the monitoring information provided, the vegetation field data will be compared against the "Performance Criteria," or predetermined standards developed to measure the success of the program (see below). Suggestions for remedial action will be also be detailed in the reports, which will be sent to the City of Santa Barbara and all other involved agencies such as the ACOE and the CDFG.

6.3 Performance Criteria

Performance Criteria define the level of success of the program. Success rates falling under the stated minimum (see Table 2) may signal the need for a second revegetation effort. These performance values may be modified following field observations.

TABLE 2: PERFORMANCE CRITERIA MATRIX			
FEATURE	GOALS	CRITERIA	CONTINGENCY
Container Plants	Increased native plant cover and diversity within the Restoration Areas.	A minimum of 70 % survival of container plants after five years.	Replace if survival rate is less than 90% the first year, 85% the second year, 80% the third year, and 75% the fourth year.
Exotics	Exotic trees and Shrubs no not reinvade Site. Periwinkle and other vines do not inhibit the growth of planted native material.	No more than 5% groundcover of exotics at any monitoring visit. No regrowth of exotic trees or shrubs.	Increase weeding schedule or change methods.
Erosion Control	Restoration of the creek banks, and especially the rehabilitation of Arroyo Burro, does not increase sedimentation downstream.	Site is monitored after every heavy storm and any erosion problems are immediately repaired.	Re-evaluate erosion control methods.

7.0 REFERENCES

Army Corps of Engineers, 2006. Personal communication with Mathew Vandersande, February 14, 2006.

California Department of Fish and Game, 2006. Meeting on site with Natasha Lohmus, February 15, 2006.

National Marine Fisheries Service, 2006. Meeting with Mathew McGoogan on February 22, 2006 at project site for informal opinion concerning effect of project on fisheries resources.

Questa Engineering, 2006. Creek Stability Analysis for the Hitchcock Center Redevelopment Project . Submitted to Erwin Bucy, Vice President, Investments Regency Centers, January 24, 2006.

United States Department of Agriculture (USDA), 1999. Natural Resources Conservation Service. Principles, Processes, and Practices. Federal Interagency Stream Restoration Working Group (FISRWG)(15 Federal agencies of the US gov't). GPO Item No. 0120-A; SuDocs No. A 57.6/2:EN 3/PT.653. ISBN-0-934213-59-3.

March 9, 2006

Mr. Erwin Bucy
Vice President, Investments
Regency Centers
915 Wilshire Boulevard, Suite 220
Los Angeles, Ca 90017

Subject: Creek Stability Analysis for the Hitchcock Center Redevelopment Project

Dear Mr. Bucy:

Based my site visit January 17, 2006 and previously compiled data on the Arroyo Burro Watershed, I have prepared the following background information, site evaluation, and proposed conceptual creek rehabilitation plan for the Hitchcock Plaza redevelopment site.

Project Description

The proposed *State and Hitchcock Center Project* involves the redevelopment of approximately 3.54 acres of land located on upper State Street at the corner of State Street and Hitchcock Way. The project site is bound by State Street on the north, San Roque Creek on the south, Hitchcock Way on the east and Arroyo Burro Creek on the west. These creeks join immediately downstream of the site and continue as Arroyo Burro Creek.

The proposed development would involve construction of 4 (four) new, one- to three-story buildings on the project site. One of the structures will have a subterranean parking garage and a truck receiving area. Three-story townhouse style condominium units are proposed along the San Roque and Arroyo Burro Creek corridors.

The proposed building layout has been designed to provide a minimum 50-foot building setback from the 100-year flood elevation lines of San Roque and Arroyo Burro Creeks. Minor development encroachment into the proposed 50 foot structural setback area would occur along San Roque Creek and would consist of permeable materials associated with a pedestrian path. Minor development encroachment into the proposed 50 foot structural setback area would occur along Arroyo Burro Creek and would consist primarily of permeable materials associated with a pedestrian path, the required fire access lane, and columns to support a vehicle ramp providing access to the roof-top parking above the commercial building.

Geomorphic Background

The project site is located within the Arroyo Burro Creek watershed. The creek flows about 7 miles south from its headwaters in the Santa Ynez Mountains, at an elevation of 3,800 feet mean sea level (MSL), until it discharges into a small tidal estuary at Arroyo Burro Beach County Park (Hendry's Beach). Tributaries to Arroyo Burro Creek include Las Positas Creek, Barger Creek, San Roque Creek, and Lauro Canyon Creek. A small, tidally influenced lagoon is present at the end of the creek at Arroyo Burro Beach. The upper portions of the creek traverse rural estates and orchards, while the middle portions of the creek pass through dense residential and commercial development between Foothill Road and Highway 101. Downstream of Highway 101, the creek traverses a mixture of residential areas and open space. The watershed drains approximately 5,600 acres of land.

Two main tributaries to Arroyo Burro Creek in the upper watershed include San Roque Creek, which forms an east branch, and Arroyo Burro Creek, located in Barger Canyon to the west of the main stem. Barger Canyon constitutes about 15% of the overall watershed (840 acres), while San Roque Creek constitutes about 48% of the overall watershed (2,688 acres). Upper reaches of the watershed are dominated by mixed chaparral open space, while the middle watershed runs through low-density residential areas. Most reaches have moderately vegetated banks, cobble and sand substrate, while portions of Arroyo Burro have been channelized north of Highway 101. Bank instability is a significant problem in middle and lower Arroyo Burro. Based on review of existing channel geomorphic conditions, our general observations are that the Arroyo Burro reaches are susceptible to bank failure by hydraulic toe scour and undercutting of over-steepened banks, as well as more deep-seated geotechnical causes.

The existing bank erosion sites occurring throughout Arroyo Burro and San Roque Creeks may indicate that isolated installations of hard channel revetment have had upstream and downstream impacts on other channel segments.

Fisheries

The following description of local fisheries resources in the project site and adjacent areas is summarized from the draft existing creek conditions study previously prepared by Questa.

Upper Arroyo Burro (Upstream of San Roque Creek). Upstream of San Roque Creek, Arroyo Burro is a small tributary that can dry out by mid summer. Habitat conditions are poor to fair with high substrate embeddedness and apparent lack of adequate summer flow and pool habitat. This reach of Arroyo Burro has not been extensively surveyed, but does not appear to contain significant habitat value for potential future salmonid restoration.

San Roque Creek. San Roque Creek is the primary headwater tributary of the Arroyo Burro Watershed. Upstream of the Arroyo Burro confluence, San Roque Creek contains a higher percentage of cobbles and boulders and a reduction in fine silts and sand deposits. Trickling surface flows were still observed just upstream of Arroyo Burro in July 2001. Salmonid habitat conditions are fair in lower San Roque Creek. Surface flows become sporadic upstream of Hitchcock Street. Minimal riparian canopy cover occurs upstream of State Street where adjacent parking lots and development have constricted the stream channel with associated concrete bank revetment.

During 2001 surveys, summer surface flows were observed to occur from the Highway 192 Bridge upstream to the upper identified natural barrier within Rancho San Roque. Fair to good salmonid spawning and rearing habitat conditions were observed in this reach. Summer pool habitat occurs upstream of Highway 192 and larger boulders provide good in-stream cover.

To summarize, Arroyo Burro Creek has limited salmonid habitat above its confluence with San Roque Creek. San Roque Creek has degraded habitat but upper portions of the watershed have conditions that could support salmonids. Fisheries and fish passage need to be considered in potential restoration or stabilization plans for San Roque Creek.

Site Conditions

Urbanization has impacted both the creeks on site. **Figure 1** below illustrates the conceptual evaluation of the channel after channelization and urbanization. There are generally five stages of creek evolution in a degrading system (**Figure 1**). Urbanization confines creek channels, increases entrenchment and armors or stabilizes large portions of the creek banks. This has many interdependent impacts but generally it increases the entrenchment of the creeks and reduces bank erosion and sediment inputs locally. This typically leads to channel bed degradation. Typically, anthropogenic features such as culverts limit the amount of degradation potential in the urban creek systems.

The project site creek reaches are bounded by culverts at Hope Street, Hitchcock Way and State Street. **Figures 2** and **3** show the profiles of both creeks. Generally, I believe that both Arroyo Burro Creek and San Roque are in creek evolutionary stages III and IV respectively. We have addressed each channel individually.

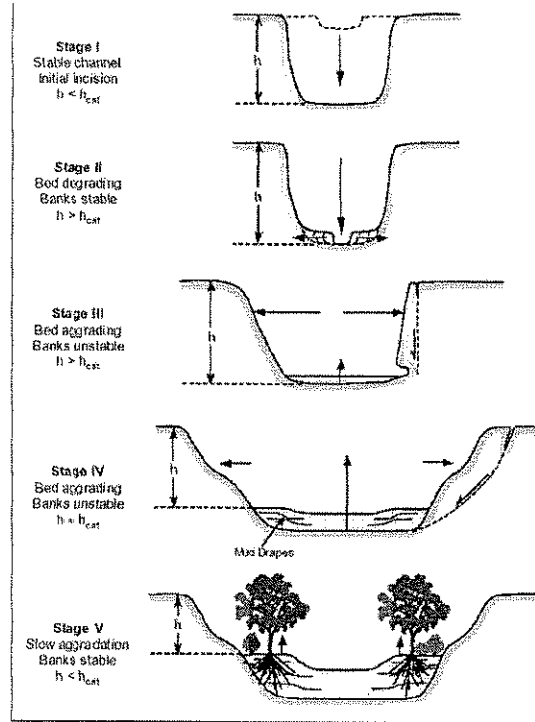


Figure 1. Schematic Urban Channel Evolution

San Roque Creek Bank Stability.

San Roque Creek appears to be in a later stage of evolution than Arroyo Burro Creek. It appears that most if not all of the potential degradation has occurred in the reach. Large boulders have been placed in the channel bottom at the upper end of the reach, which is likely to have a stabilizing factor. **Figure 3** shows that the stream bed profile in the lower reach is nearly flat and actually ponds low flow water. This is a clear indication that bed slope has stabilized and the reach is entering the fourth stage of channel evolution. The photos below show illustrate these points.



Photo 1. Low gradient reaches of San Roque Creek



Photo 2. Placed boulders for bed stabilization in upper San Roque Creek

The banks of San Roque are generally stable. There are isolated segments near the confluence, that have slumped and appear to have minor portions left to slide. These areas are outside of the building envelope and well within the setback limits. The existing concrete wall appears to be stable from bank retreat and I believe can be retained in the

project. A small area at the base of the gabions is starting to degrade. Here the gabion basket wire has been worn away and the bottom of the basket (s) have lost their integrity. This does not appear to be a major problem but the area should be monitored to address any problems before they become large stability issues.

San Roque Creek is in a later stage of its evolution and does not show significant signs of recent instabilities.

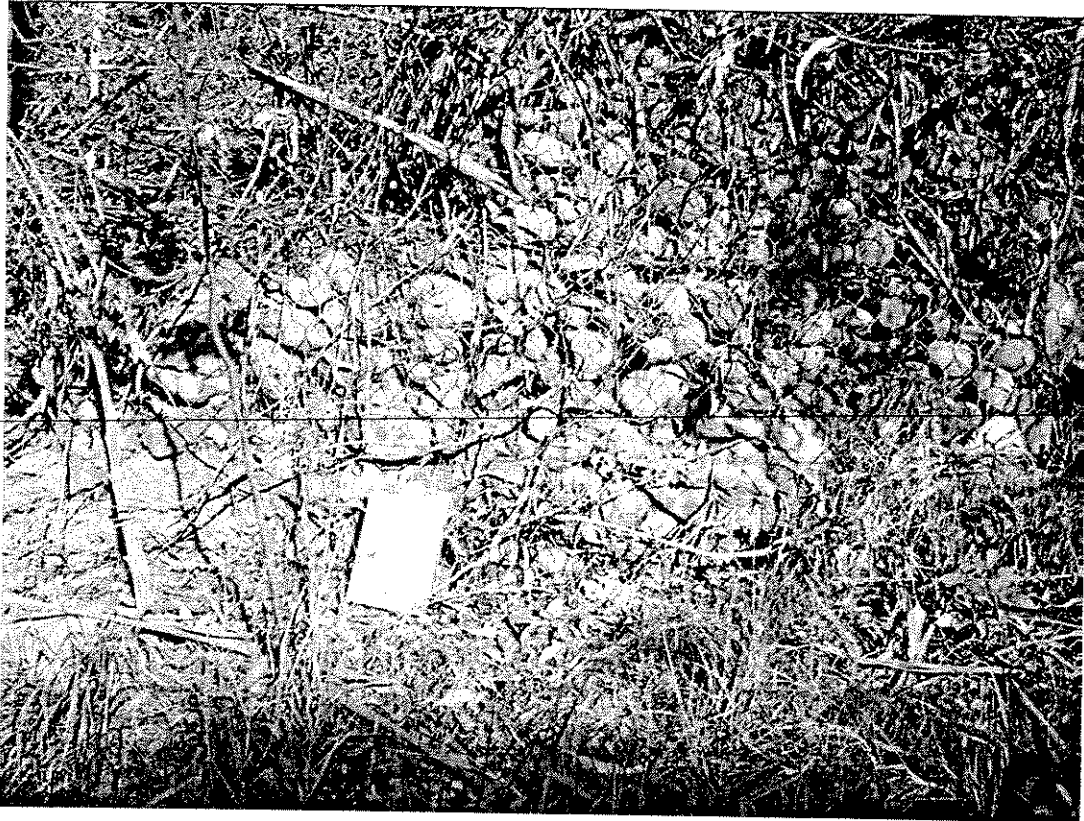


Photo 3. Base of gabions baskets showing broken bottoms – San Roque Creek

At present it appears that there is extensive root binding from the large eucalyptus trees. These trees will limit the revegetation effort due to shading and phytotoxic soil conditions. I would suggest removing these trees but retaining the stump and root structures. Newly cleared areas should be planted with riparian tree species.

As there are no channel bed or bank instability issues relating to San Roque Creek, I do not propose any improvements for this reach.

Arroyo Burro Creek Bank Stability.

Arroyo Burro creek is in an earlier stage of channel evolution and will continue to actively erode. The majority of this creek reach is dominated by sand and small gravel

bedload (material found deposited on the bed of the stream). Few large boulders were evident in the channel. Generally speaking, stable bed slope can be correlated with the size bed material in the channel. The coarser the bed material, the steeper the stable slope. For example; large 4 to 8 inch cobble bed rivers typically have slopes between 1 and 2.5 percent; sand bed or small gravel rivers typically have stable slopes within 0.2 and 0.5 percent or less.

Because the bed material in Arroyo Burro Creek is predominantly sand for much of the project reach (300 feet out of 500 feet), we can roughly assume a stable long-term slope of the channel would be in the 0.3 to 0.5 percent range. The current slope between the Hope Street culvert and State Street is approximately 2.46 percent. Figures 2 and 3 show what could be the potentially stable slope given data that we have and one representative cross section. It appears that channel will continue to degrade between 6 inches to 3.5 feet over the long term if the bed load composition remains the same. The largest amount of degradation is likely to be seen immediately below the State Street culvert outlet. There is strong evidence that this has occurred and/or is currently occurring in the system. The perching of the State Street culvert and the current placement of boulder revetment at the outlet are evidence of recent channel degradation. The photos below show signs of recent degradation in the channel.



Photo 4. Evidence of recent channel degradation below State Street culvert



Photo 5. Degradation at the pipe and wire revetment

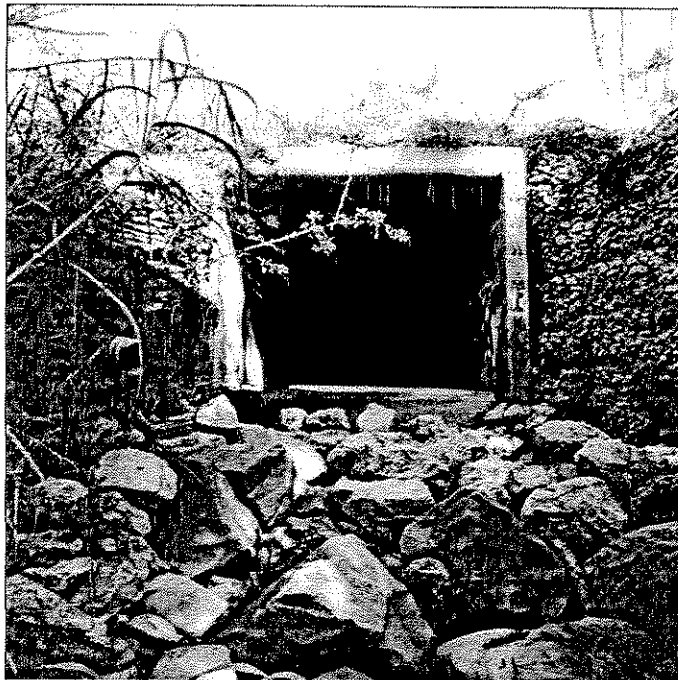


Photo 6. Boulders placed at culvert outlet to stabilize degrading bed

The creek banks along Arroyo Burro Creek appear to be steep and stable in the short term. At present slopes are on average 1(H): 1(V). A typical natural semi-stable slope would be in the 1.5 (H): 1(V). As the channel continues to degrade the natural tendency for the channel is to widen its top of banks through slumps and geotechnical failures. **Photo 7** shows one of these failures occurring opposite the project site.



Photo 7. Bank failures in Arroyo Burro Creek, looking towards State Street

This erosion process will likely in time drive channel widening, potentially threatening the mature bank top oak trees and top of bank facilities. The existing pipe and wire revetment is aging and will eventually fail removing or reducing the toe support it is currently giving to the channel bank. Therefore it would not be infeasible that over time the bank top on the project site would retreat 10 feet from its present location if the bed elevation were to remain at its present location.

Arroyo Burro Stabilization Options

There are several potential options to address the channel bed and banks instability.

Option 1. No Action. This option would entail doing little or no work in the channel. It is likely that over time the top of bank will expand by \pm 10 to 15 feet. If this option is chosen I would recommend ~~that~~ 10 to 15 feet of additional setback for the buildings, roadways and other improvements.

Option 2. Armor the existing bed with larger immobile rock. This would stop or reduce current bed degradation but would leave the banks in their 1:1 configuration. Toe buttresses or other stabilization measures would be required so that little or no bank retreat would occur. Over time sand and small gravel would accumulate in the bed overlaying the armoring rock. The slope may continue to flatten through deposition. This reduction in slope could lead to increased lateral streambed migration leading to bank toe scour and potential bank failures. These failures would not likely impact any proposed building but could impact proposed storm drain and roadway infrastructure.

Option 3. Reestablish a stable steeper gradient. This option would entail recreating the previous 2 percent channel bed slope. This would be accomplished by placing dirt and rock fill material. The rock would be used to stabilize the channel bed. Reestablishing the historic grade would have several positive benefits. It would minimize top of slope retreat, reduce existing erosion, and reduce the potential for future geotechnical failures of the bank. This option is therefore the preferred stabilization option and is described in more detail below.

Proposed Rehabilitation Concept

The third option that would entail placing fill into the existing channel and recreating a ± 2 percent gradient in the channel for approximately 450 feet of the creek reach has been further developed. The steeper gradient would be stabilized by a series of 8, 1-ft high boulder grade control features spaced approximately 50 feet apart. **Figures 4 through 7** show this concept. This would entail placing up to five feet of fill in the channel bottom, roughly 800 to 900 yards of material and 800 tons of rock comprising of mixture of 1- and 2- ton rock with other diameter classes ranging from 16 to $\frac{3}{4}$ inches. The channel could be configured as a consistent slope then allowed to develop into low step pool morphology. Because fisheries resources are not critical, step pool height would comply with NOAA or CDFG criteria. Placing fill in the channel and reestablishing a channel will increase channel width, reducing flow depth and reducing channel scour forces. Wider channel width would also accommodate bank toe planting, and biotechnical stabilization techniques. Reestablishing a higher gradient creek would reduce its tendency to move laterally ensuring greater bank toe stability. Existing bank vegetation would be maintained to greatest extent possible. The existing pipe and wire revetment downstream of State Street would be removed and a planted boulder toe would replace it providing stability to the upper banks. I would propose exotic vegetation removal and the replanting with native riparian species.

Flood Control and Hydraulic Analysis

Currently, Arroyo Burro does not experience 100-year flooding in this portion of the channel. The project concept proposed above will only be feasible if the proposed project will not cause any new overbank flooding. In order to investigate this potential preliminary hydraulic analysis was conducted by Penfield and Smith. Penfield and Smith has just recently completed the restudy and delineation of the 100-year floodplain in Arroyo Burro for the Federal Emergency Management Agency (FEMA). Using previously compiled hydraulic models the project concept was evaluated to determine if the placement of fill in the channel would cause overbank flooding.

Based on their modeling the following conclusions were drawn;

- No increase in the 100-year flood elevation upstream of the state street culvert was caused by the proposed project

- 100-year water surfaces are increased downstream in the project area but at least 2 feet of freeboard is maintained between the water surface and the lowest top of bank elevation.
- A letter of flood plain map revision is possible with the support of the City and adjacent landowners.

I have attached the summary sheet of the Penfield and Smith's analysis to this letter.

SUMMARY

Arroyo Burro Creek and San Roque Creek are in different stages of channel evolution. San Roque Creek is in a later stage of evolution and appears to be in quasi-equilibrium with its urban/open space watershed. This channel is unlikely to experience significant future bed degradation and the amount of channel bank top widening is likely to be minor on the project side. Any channel widening that may occur is likely to be on the opposite bank (YMCA property side) where several small recent slumps or slides can be noted. Of some concern is the degradation of a small portion of the gabion baskets. The eucalyptus trees should be removed and native riparian tree species should be planted.

Arroyo Burro Creek bed appears to be actively in the process of degrading. This is causing over steepened bank slopes and will eventually lead to channel bank top widening. I have recommended a plan to address this evolutionary trend for Arroyo Burro Creek.

Rehabilitating and stabilizing the bed grade will reduce the potential for bank failure and widening of the channel. We believe that reestablishing the historical grade and placing grade control in the channel will provide viable long-term bed stabilization and reduce the threat of significant bank retreat. The reconstruction of the channel bed will increase flood elevation in the channel but this increase in levels are still within the bank tops and will not increase flood risk to adjacent properties.

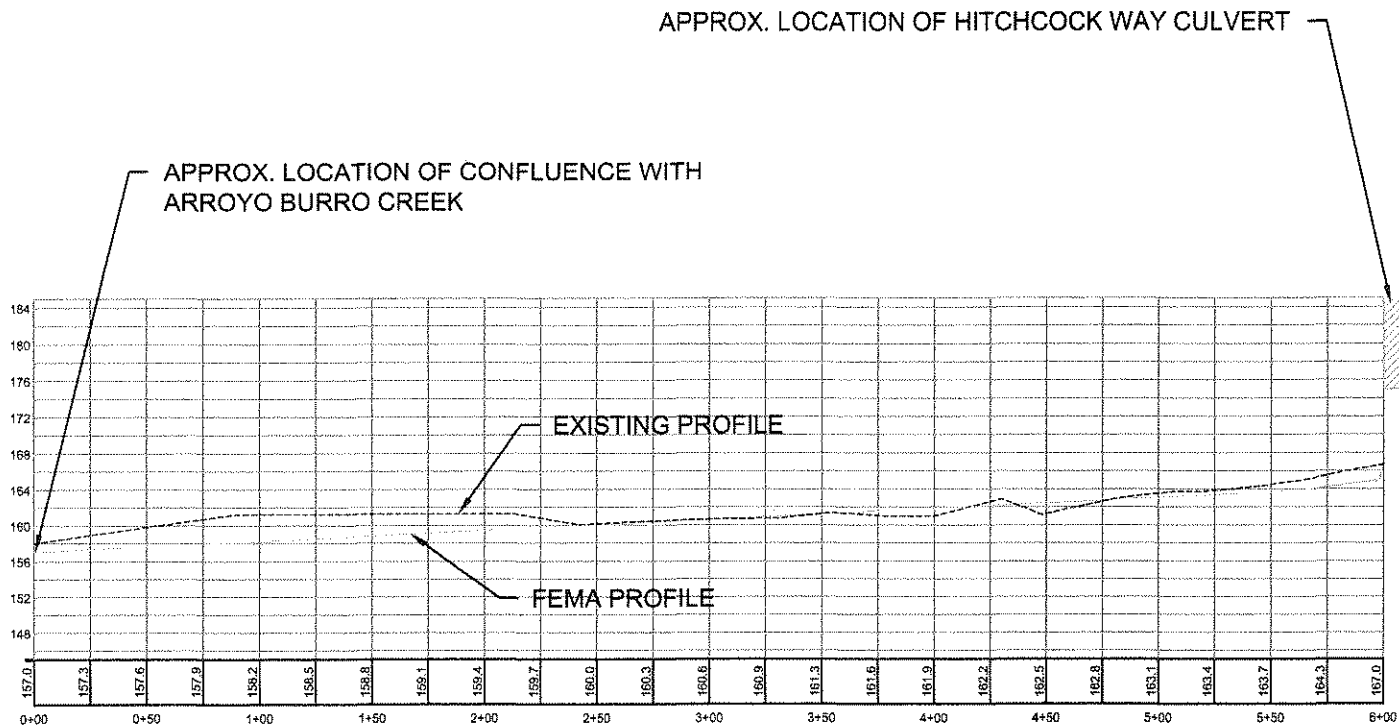
I hope this evaluation aids in the planning of a sustainable project. If you have any questions regarding the concepts or creek conditions discussed above, please do not hesitate to contact me at (510) 236-6114 ext. 220 or by email stemple@questaec.com.

Sincerely,

Sydney Temple P.E.
Principal

Attachments; Figures 2-7; hydraulic analysis summary

Ref. 250228site evaluation and plan.doc



PROFILE OF SAN ROQUE CREEK
 SCALE: HORIZ.: 1"=80'; VERT.: 1"=20'

Date: 3/10/2006
 Drawn: C.H.H.
 App'd: S.T.
 Dwg. No: 250228-HC-Basemap.dwg

QUESTA
 Civil
 Environmental
 & Water Resources
 (510) 236-6114
 Fax (510) 236-2423
 P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

**SAN ROQUE CREEK
 STREAMBED PROFILE ANALYSIS
 HITCHCOCK CENTER
 SANTA BARBARA, CALIFORNIA**

**FIGURE
 3**



0' 100' 200'
50'
SCALE: 1" = 100'

PROPOSED GRADE CONTROL
(TYPICAL; 8 TOTAL AT 50' O.C. AND 2% SLOPE)

EXISTING PIPE AND WIRE
FENCE ON LEFT BANK TO
BE REMOVED (NOT SHOWN)

ROCK AND WILLOW BANK
STABILIZATION AS NEEDED

EXISTING CONCRETE GRADE CONTROL
EXISTING GABIONS

ARROYO BURRO CREEK

PROPOSED LIMITS OF FILL.
LATERAL LIMITS OF FILL
TO BE DETERMINED.

STATE STREET
CULVERT

SAN ROQUE CREEK

DESIGN CONCEPT

ADD (8) GRADE CONTROL STRUCTURES
TO REBUILD BED OF EXISTING DEGRADED
REACH OF ARROYO BURRO CREEK

Date:	3/10/2006
Drawn:	R.A.B.
Appr'd:	S.T.
Dwg. No:	250228-HC-Basemap.dwg



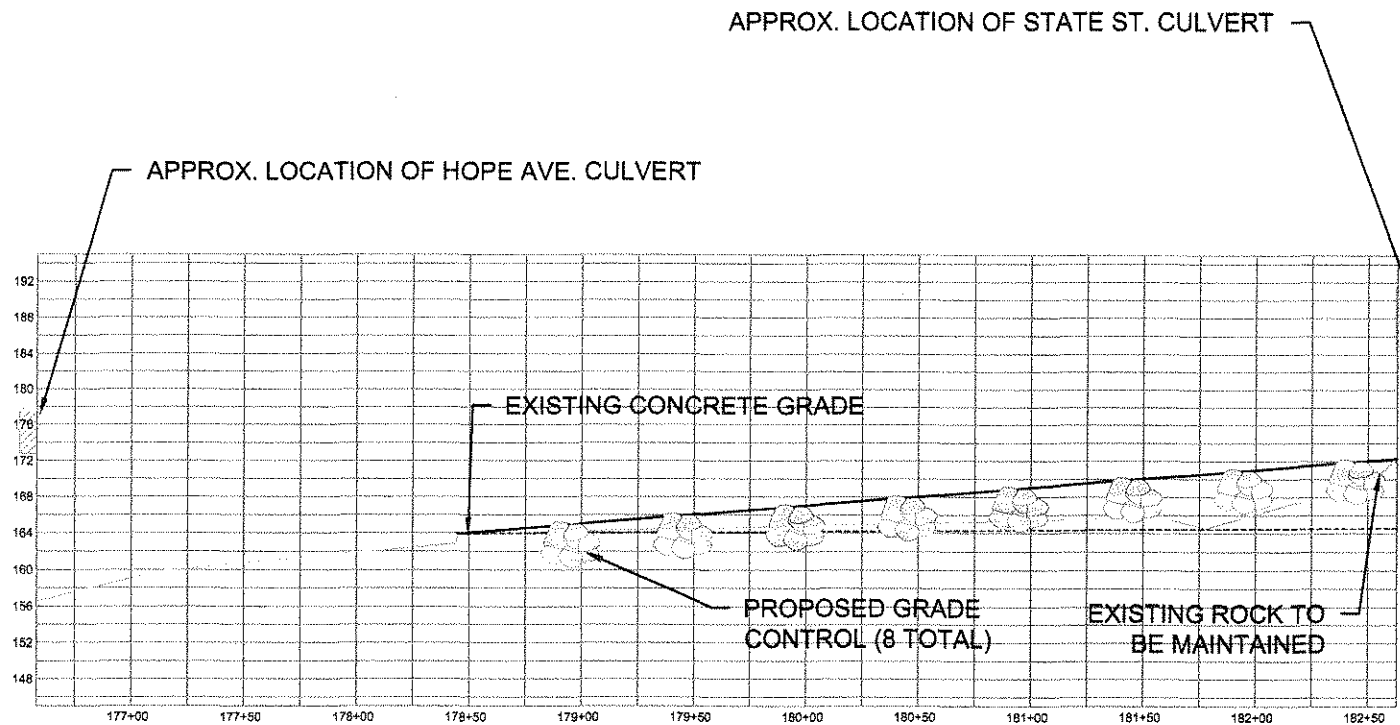
Civil
Environmental
& Water Resources

(510) 236-8114
FAX (510) 236-2423
questa@questacon.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

CONCEPTUAL SITE PLAN
HITCHCOCK PLAZA
SANTA BARBARA, CALIFORNIA

FIGURE

4



PROFILE OF ARROYO BURRO CREEK

SCALE: HORIZ.: 1"=80'; VERT.: 1"=20'

GRADE CONTROL NOTES:

1. GRADE CONTROL TO BE SET AT 50 FEET APART TO ACHIEVE 12" MAXIMUM DROP PER NOAA FISHERIES.
2. GRADE CONTROL WIDTHS MAY RANGE FROM 6 TO 8 FEET.
3. TO CONSIST OF 1-2 TON ROCK AND 30% MIXTURE OF 3-6" CRUSHED STONE.
4. TO BE KEYED VERTICALLY AND Laterally A MINIMUM OF 5 FEET OR TO REFUSAL.

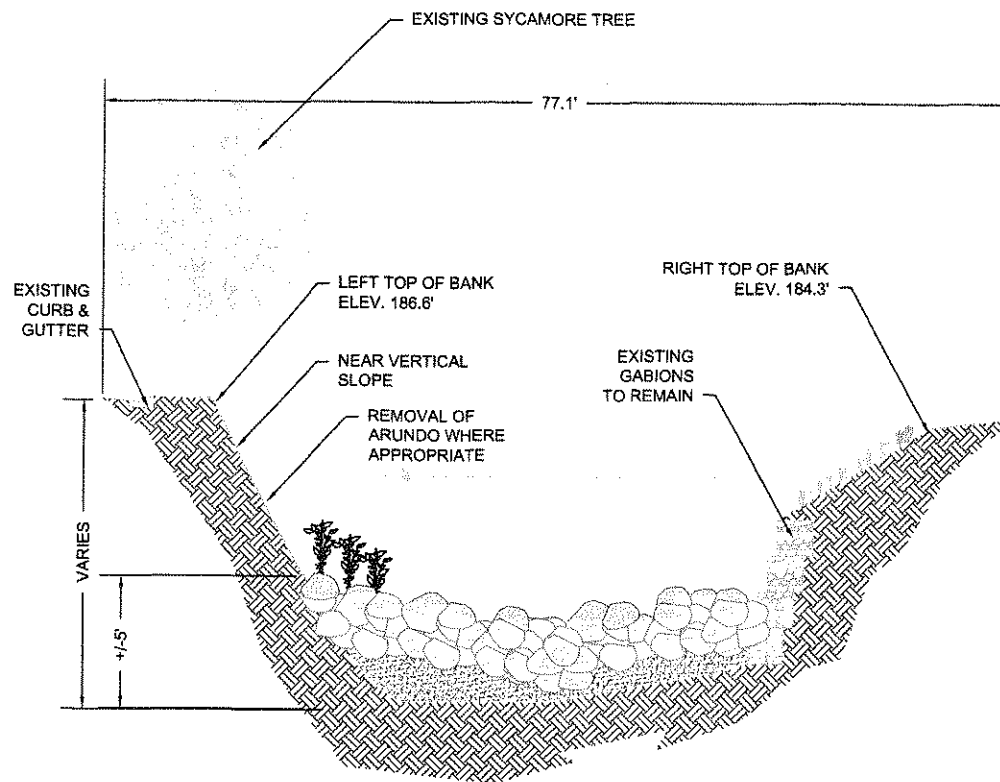
Date: 3/10/2006
 Drawn: C.H.H.
 Appr'd: S.T.
 Dwg. No: 250228-HC-Basemap.dwg

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 (510) 236-6114
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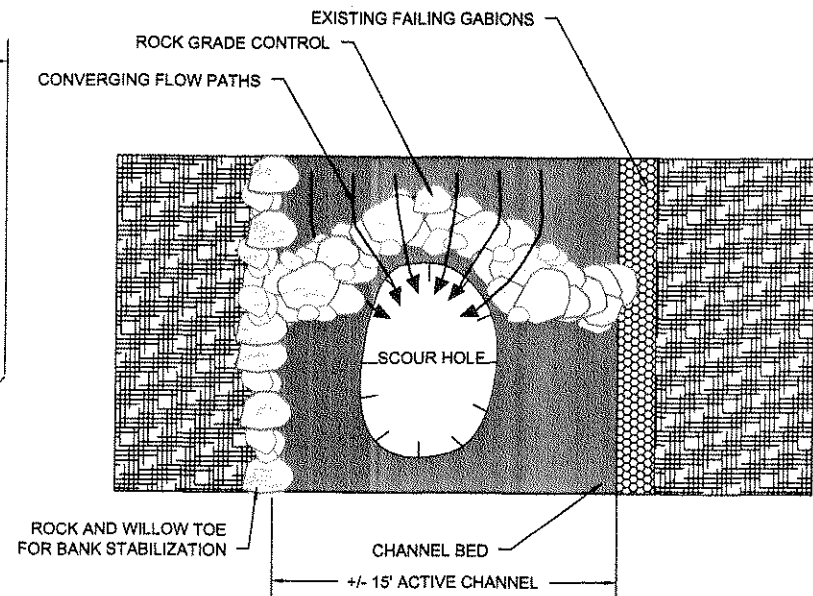
**ARROYO BURRO CREEK
 PROPOSED PROFILE
 HITCHCOCK CENTER
 SANTA BARBARA, CALIFORNIA**

FIGURE

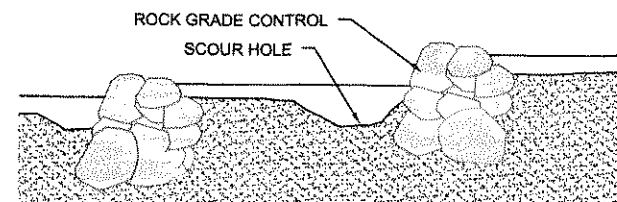
5



STA 171+00 LOOKING DOWNSTREAM
NOT TO SCALE



PLAN VIEW OF GRADE CONTROL
NOT TO SCALE



TYPICAL PROFILE
NOT TO SCALE

- NOTES:**
1. GRADE CONTROL STRUCTURE TO CONSIST OF 1-2 TON ROCK AND 30% MIXTURE OF 3-6" CRUSHED STONE.
 2. GRADE CONTROL STRUCTURES TO BE KEYED VERTICALLY AND Laterally A MINIMUM OF 5 FEET

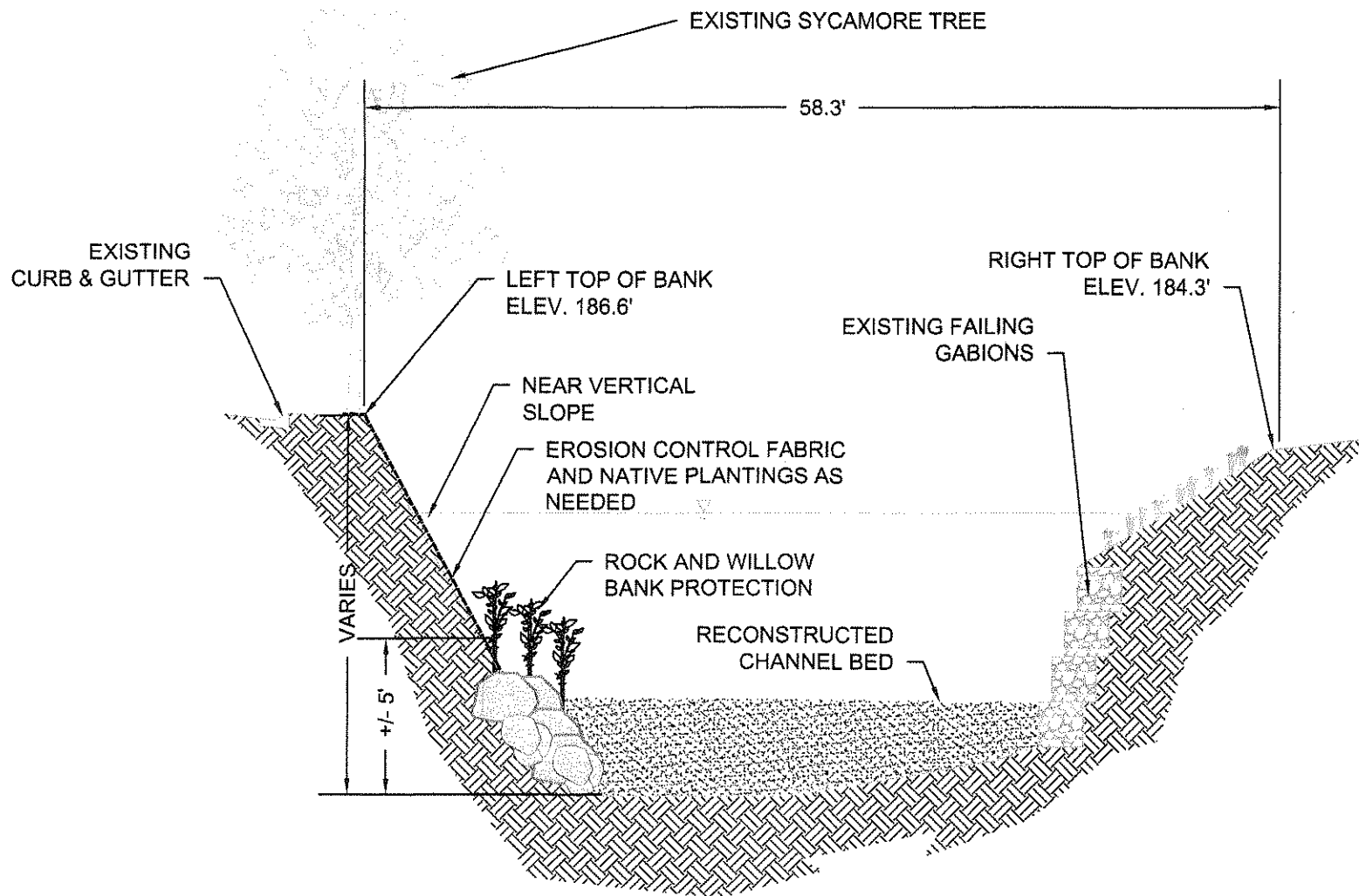
Date:	10/27/2004
Drawn:	C.H.H.
App'd:	S.T.
Dwg. No:	250228-HC-Basemap.dwg

QUESTA
Civil
Environmental
& Water Resources

2700 7th St.
San Luis Obispo, CA 93401
P.O. Box 20398 1230 Rockwood Drive Road, Dublin, CA 94568

**ARROYO BURRO CREEK
PROPOSED SECTION
HITCHCOCK CENTER
SANTA BARBARA, CALIFORNIA**

FIGURE
6



**TYPICAL SECTION BETWEEN GRADE
CONTROL LOOKING DOWNSTREAM**

NOT TO SCALE

Date: 3/10/2006
 Drawn: C.H.H.
 Appr'd: S.T.
 Dwg. No: 250228-HC-Basemap.dwg



(510) 736-4114
 FAX (510) 236-2423
 questa@questawater.com
 P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

**ARROYO BURRO CREEK
 PROPOSED SECTION
 HITCHCOCK CENTER
 SANTA BARBARA, CALIFORNIA**

FIGURE

7

Thomas E. Olson Biological Consulting

104 South "C" Street, Suite G

Lompoc, California 93436

February 24, 2006

Mr. Chris Dellith
U. S. Fish and Wildlife Service
2493 Portola Road
Suite B
Ventura, CA 93003

Re: Site Assessment for California Red-legged Frog (CRLF)
State and Hitchcock Redevelopment Project
Santa Barbara, CA

Dear Mr. Dellith:

Please find enclosed a site assessment for CRLF at and near the above-referenced proposed project site. No CRLF were found during the assessment. The habitat is marginal for CRLF; nearly all of Arroyo Burro Creek is dry for a substantial portion of the year. In the vicinity of the project area, San Roque Creek appears to retain a bit more surface (non-flowing) water. At least one pool of surface water was present in October 2005. The two creeks in the vicinity of the project site do not represent CRLF breeding habitat. Both lack suitable pool habitat with structure for cover. Features such as undercut banks and exposed tree roots are not present. There is some cover in the form of emergent vegetation, but it is limited in extent. Subadult CRLF could use these creeks as dispersal corridors; however there are no records of this species occurring within 1.6 km (1 mile) either upstream or downstream of the site.

No work will occur in San Roque Creek. Some work will occur in Arroyo Burro Creek, a stream that has been disturbed several times in the past, judging from the differing types of stabilization structures placed on the bank. The work in Arroyo Burro Creek would be done during the dry season.

Note that protocol surveys were done on a lower portion of the combined Arroyo Burro Creek in 2000 and 2001 by herpetologist Larry Hunt with no observations of this species. Paul Collins, curator of vertebrate section of the Santa Barbara Museum of Natural History, pointed out that there have been relatively recent sightings of CRLF in the upper reaches of some creeks above Santa Barbara and Montecito, but knew of none in the lower reaches of either San Roque or Arroyo Burro Creek.

I checked the California Natural Diversity Data Base (CNDDB; February 2006 version) for the Santa Barbara, Goleta, and Carpinteria 7.5-minute quads. The only two records for CRLF were: (1) Cinquefoil Creek above the confluence of Hot Springs and Cold Springs creeks, above Montecito; and (2) Santa Monica Creek, above Carpinteria. The project site does not have direct habitat connections to either of these locations.

Based on results of investigations for this project site, a letter of no effect for CRLF is requested. The site is surrounded by existing commercial development. The two creeks

do not contain breeding habitat and only marginal habitat for dispersal. Such dispersal would likely happen only during the wet season of the year when construction in Arroyo Burro would not take place. Moreover, dispersal is unlikely because, as noted above, there are no reports of CRLF occurring within 1.6 km (1 mile) either upstream or downstream of the site. Please call me if you need additional information (805-717-1938).

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas E. Olson".

Thomas E. Olson

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment completed by: _____ Date: _____

Date of Site Assessment: 10-11-05
(mm/dd/yyyy)

Site Assessment Biologists: Olson Tom
(Last name) (first name) (Last name) (first name)

Site Location: 3751 State Street to 3771 State Street,
Santa Barbara, Santa Barbara Co.
(County, General location name, UTM Coordinates or Lat/Long, or T-R-S).

Confluence of San Roque and Arroyo Buero Cuelos
****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: State & Hitchcock Redevelopment Project

Brief description of proposed action:

The project involves the redevelopment of 3.54 acres of land located at the corner of State Street and Hitchcock Way. The project site is currently developed with one to three-story commercial bldgs. It is entirely built out. Redevelopment would provide new commercial space. All existing structures on the site would be demolished; however no demolition or construction

would occur within the streambanks.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
 If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: No ponds

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM: San Roque Ck Arroyo Burro Ck
 Bank full width: 15-20' 10-15'
 Depth at bank full: up to 8' up to 6'
 Stream gradient: Low Low

Are there pools (circle one) YES NO

If yes,

Most pools were dry in Oct. 2005

Size of stream pools: Both streams - generally 3' x 4' or 5'

Maximum depth of stream pools: 4' - 2.5'

Characterize non-pool habitat: run, riffle, glide, other: Run in heavily vegetated creeks. At least a portion of each has revegetation and bank stabilization on banks.

Vegetation: emergent, overhanging, dominant species: Much of it - non-native: eucalyptus, Nicotiana, myoporum, Vinca, Palms, Bottlebrush. Some natives - willow, sycamore, blackberry. Cattle at one pool.

Substrate: Rip-rap & revegetation on much of banks. Cobbley-rocky substrate in creek bottoms.

Bank description: Several different bank stabilization structures overgrown with vegetation. Banks of both creeks quite steep.

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: Reports on timing, quantity of precipitation. Generally March-May.

Other aquatic habitat characteristics, species observations, drawings, or comments:

San Roque and Arroyo Burro creeks merge adjacent to the project site. The resultant single creek is referred to as Arroyo Burro creek in downstream reaches. The streams are ephemeral, but a few pools retain water, probably due to landscape irrigation runoff. There is only limited CRLF habitat in the vicinity. During surveys conducted downstream in 2000 and 2001, Hunt did not find CRLF. CRLF have not been reported from the lower portions of San Roque or Arroyo Burro creeks (Collins). The nearest known occurrence location is Bell Creek in western Colusa. There are no habitat connections between Bell Creek and San Roque/Arroyo Burro creeks.

Necessary Attachments:

1. All field notes and other supporting documents - Field notes attached
2. Site photographs - Attached are photos from San Roque and A. Burro
3. Maps with important habitat features and species location